

AMERICAN  
DENTAL  
JOURNAL

7

1908

DENTAL LIB.

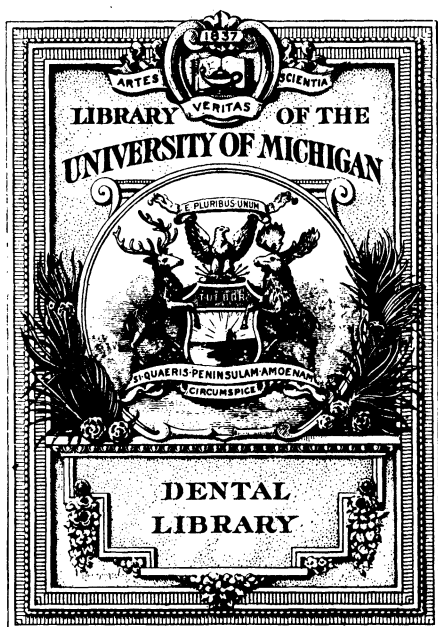
RK

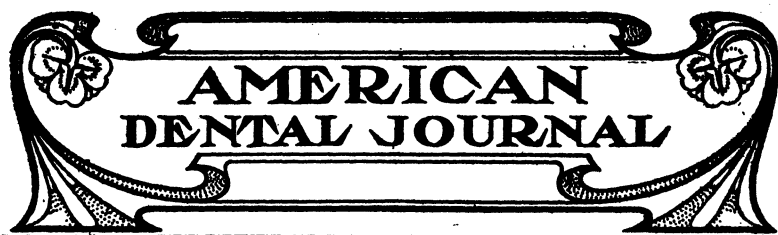
1

A464

copy 2







PUBLISHED ON THE FIRST OF EVERY MONTH

Vol. 7.

JUNE, 1908.

No. 6.

# TABLE OF CONTENTS.

	Page.
<b>Our Post Graduate Course.</b>	
Porcelain,	
By T. E. POWELL, - - - - -	335
Operative Dentistry,	
By R. B. TULLER, D. D. S., - - - - -	339
Dental Pathology,	
By GEORGE W. COOK, B. S., D. D. S., - - - - -	344
<b>Original Contributions.</b>	
Toothsome Topics,	
By R. B. TULLER, D. D. S., - - - - -	358
<b>Abstracts and Selections.</b>	
Enlarged Metallic Posts to Conform to Badly Decayed Roots,	
By B. J. CIGRAND, D. D. S., - - - - -	369
Most Important Mechanical and Chemical Properties of Silicate and Zinc-Phosphate Cements,	
By DR. MAX KULKA, Teschen, Germany, - - - - -	376
<b>Foreign Department.</b>	
THOMAS A. LARSENEUR, D. D. S., Editor.	
Study of Novocaine, - - - - -	350
Ingenious Method of Obtaining Space for a Contoured Crown, -	354
The Effect of Abrasive Soaps on Metal Plates, - - - - -	355
Asepsis, - - - - -	356
<b>Meetings,</b> - - - - -	384
<b>Miscellaneous,</b> - - - - -	394
<b>Personal and General,</b> - - - - -	397
<b>Necrological,</b> - - - - -	398
<b>Illustrated Patents,</b> - - - - -	399
<b>Index to Advertisers,</b> - - - - -	401

# **Listerine Tooth Powder**

Tooth powders have long been empirically employed, chiefly as a mechanical agent for cleansing the teeth, and with little regard to their composition or chemical action. Many of the articles sold for this purpose contain ingredients prone to fermentative action in the mouth, such as orris root, starch, sugar, etc., and, in addition, pumice stone, cuttlefish bone, or other harmfully abrasive substances.

Listerine Tooth Powder, possessing neither of these objectionable qualities, very acceptably meets all the requirements of a frictionary dentifrice, and promises to give much satisfaction to those who employ it, in conjunction with a mouth-wash of Listerine, suitably diluted.

To dental practitioners of record, the manufacturers will be pleased to send a supply of samples of Listerine Tooth Powder for distribution to patients.

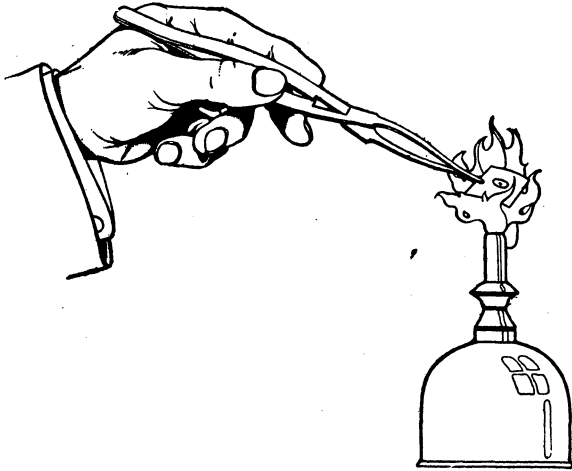
**Lambert Pharmacal Co.**  
**Saint Louis**

# OUR POST GRADUATE COURSE

## PORCELAIN.

T. ELHANAN POWELL, D. D. S. CHICAGO, ILL.

Whether or not there is a demand for low fusing porcelains, they have evidently come to stay and I believe are being used by a majority of those making porcelain inlays.



As remarked in a previous chapter, any porcelain fusing below  $2,000^{\circ}$  F. loses much of its translucency on account of the large quantity of flux; yet, I have seen inlays which were made of low-fusing porcelains doing good service and having artistic and natural effects in many mouths.

A really expert manipulator of porcelain can do work with the low fusing porcelains which, if not equal to the highfusing porcelain in translucency certainly excels anything else, aside from high-fusing porcelain in restoring natural conditions.

Anyone wishing to try porcelain without very much expense can find the way made easy by using De Trey Porcelain Enamel which fuses over the flame of an alcohol lamp. Their claim is that it is "sufficiently translucent for most teeth; is equal in strength to any other porcelain; is less subject to distortion when fused in the

flame; holds soft tooth-like colors clear to the edge; when properly fused does not shrink more than other porcelains."

All porcelains shrink when biscuiting or baking. Up to its proper fusing point De Trey Enamel does not shrink more than other porcelains; but, like all other porcelains, if over-fused, loses shape and shows marked shrinkage. This is just as true of a porcelain fusing at 2,600° F. as of De Trey Porcelain Enamel.

"When properly fused, De Trey Porcelain Enamel equals in strength any porcelain made, and there is no more sense in over-fusing it than there would be in over-baking bread."

Whether these claims are true or not must be determined by each operator for himself.

Usually one of the distinct advantages claimed for low-fusing porcelain is the possibility of using pure gold for a matrix instead of platinum.

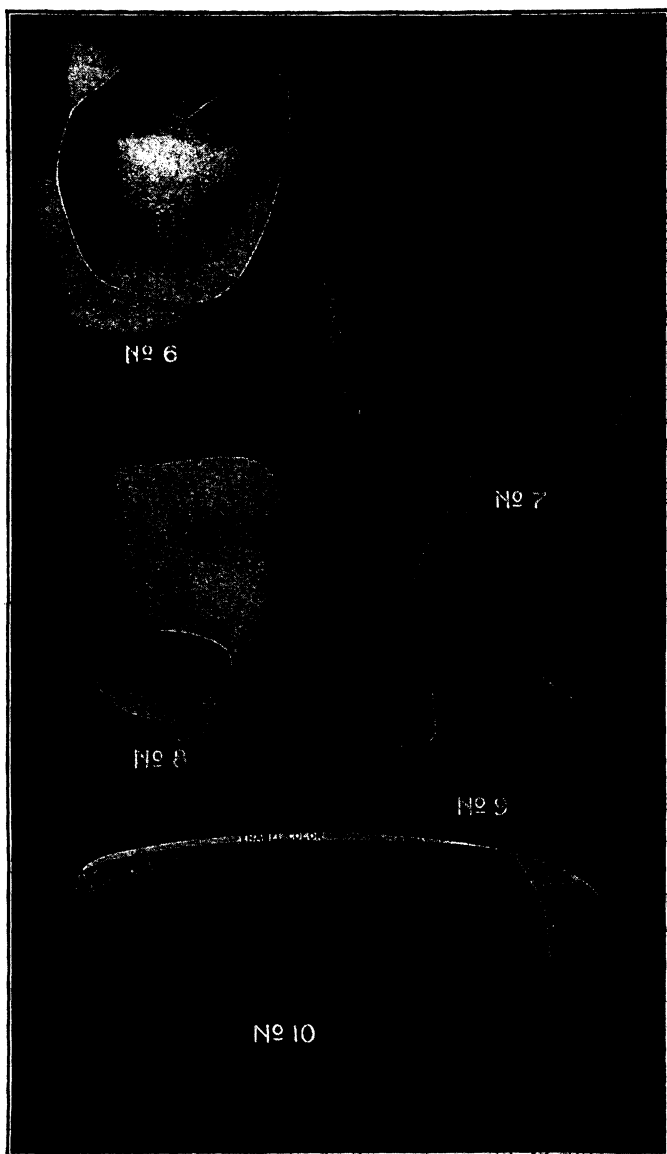
In the hands of a beginner gold is much more easily adapted to the cavity than platinum and is a saving of time, the tendency to spring being absent and the wrinkles on the margin being more easily removed.

The manufacturers, however, advise the use of platinum, or gold and platinum combined, in thickness of No. 80 foil. The reason for this is found in the tendency of the gold to distort when heat is applied. The same methods for burnishing the matrix may be used as described in previous chapters, being sure to leave the matrix with a large border outside of the cavity margin as a truss or stiffener against the contracting action which the porcelain exerts as it shrinks in baking; and then, too, in baking over the flame of an alcohol lamp the heat is not evenly distributed, which increases the tendency of the metal to curl or warp.

After selecting shades intended to be used in the making of the inlay, build the porcelain into the matrix as indicated by the accompanying cut, which is Dr. Reeves' method for building porcelain in layers according to the colors found within the natural tooth substance.

One should have an ordinary alcohol lamp trimmed so that it will burn with a blue flame; the flame controlled and protected from the air by an alcohol lamp shield.

While holding the edge of the matrix with a long pair of lock pliers, place the inlay two or three inches above the alcohol flame



until the moisture is driven out, when the inlay may be gradually brought closer to the flame.

By this method the heat may be gradually increased until the flame comes directly in contact with the inlay. Hold it in the flame until it has reached the "biscuit" stage, when additional porcelain may be added where shrinkage has occurred or for the final enamel shade.

After building on the porcelain, the baking process may be continued until a glaze appears which is accompanied by the disappearance of wrinkles, the same being replaced by a smooth satin-like appearance.

Soak the inlay in water to facilitate the removal of the matrix; roughen up the cement surface with acid or by making grooves and set as usual.

Another advantage claimed by the company is the facility with which their porcelain may be ground and repolished. When the margins are too high these may be ground down with fine grit stone, then polished with fine disks to a glaze equal to that given in the flame.

The De Trey Company recommends the use of their porcelain enamel in connection with other porcelains.

For instance, they say that many users of high fusing porcelains prefer to bake the last layer of each inlay in a low-fusing enamel, since the low-fusing porcelains can be ground and polished and the high fusing cannot. It will adhere firmly to any porcelain surface which is not glazed and will make it possible to grind and polish with disks. For repairing injuries to or defects in continuous gum cases, or all porcelain pieces this De Trey Porcelain Enamel is very valuable on account of its low fusing point and great strength. While the experiments as to its use as a finishing surface on Roach's moldable porcelain are not yet complete, results thus far attained are so favorable as to leave little room for doubt that it is nearly ideal for this purpose.

The author regrets that credit was not given to Dr. Louis Bake of Chicago for a number of the best models used in illustrating cavity formations in previous chapters. These models which are unusually good were gotten up by Dr. Bake to illustrate his course on porcelain inlays in the Illinois School of Dentistry and have been a valuable aid in describing cavity formation.

*(To be Continued.)*



## OPERATIVE DENTISTRY.

BY R. B. TULLER, D. D. S.,

CLINICAL PROFESSOR OF OPERATIVE DENTISTRY, CHICAGO COLLEGE OF  
DENTAL SURGERY.

## THE CAUSES OF SOME FAILURES OF CASTING GOLD INLAYS.

When Dr. W. H. Taggart of Chicago gave to the dental profession a practical method of casting gold for dental purposes, there were very few dentists, who, realizing the importance of the innovation, were not fired with a desire to put it to use. As soon as a knowledge of the steam method of pressure became widely disseminated, all the apparatus being easily acquired or improvised, the means was practically at hand for anyone to try and produce cast gold inlays. Some succeeded and many failed. Those who reasoned well as to every step in the process succeeded well, while those who did not grasp the extremely careful technic required, failed utterly.

Some operators are today continually successful by using steam with a very simple improvised press, as for instance hinging two pieces of wood together, or hinging a strip of board to some upright part of the bench in a way to suitably engage the top of the flask used. Some others with the best outfits obtainable have met mostly with failures. Too many have thought the matter of force necessary to carry the molten gold into the mold was the whole thing—the secret of the entire method—and that if they secured the right press, their success was assured without further concern.

The sum and substance of it is, that from start to finish every step is exceedingly particular without regard to the press used so long as it is efficient; and if this fact is overlooked, one is more likely than otherwise to fail to make a perfect fitting inlay. One may make a casting that casually looks all right, but which after all may fail of its purpose, even if it seems to go to place in the cavity. That is one trouble, they seem to be what they are not—*perfectly* adapted to the cavity. That means that they do not fit with the precision and exactness of the wax. Even a generally good operator may easily fool himself if he is not alert to the things that may go wrong at every step. Sometimes the alert, careful, painstaking man may overlook a grave fault, simply because it is only by experience, often by adverse experience, that we learn to take the proper precautions

for the future. It is the failures mostly that open one's eyes and finally brings success and confidence. And it is by publishing failures and the causes, when known, that others are warned and may profit by the knowledge so gained.

One man and a good all around operator reported to me that from the first published knowledge of cast inlay technic, and especially as to steam as a force, he had not succeeded at all in making a satisfactory inlay. From a suggestion from me he found that the blow-pipe he had been using successfully enough for years was not producing the right kind of a flame to bring his gold up to the boiling point. When pushed into the mold all the lines that should be sharp and distinct were rounded. The gold failed to fill the mold completely. There are other causes for this than not having the gold hot enough which we will touch upon further along.

Another dentist failed to use a ring with a smooth even top with the result that the steam was not properly confined when generated and there was "nothing doing" as to his molten gold. Another failed to have the flask hot enough to generate steam quickly, and his gold failed to go down, or only partly filled the mold. Here was where the improvised outfit was of no account because he did not put two and two together when he wanted four as a result.

But as before stated, the "press" is not all. All things employed in this gold casting process must work together to attain satisfactory ends. Let us begin with the wax. A wax adapted in several ways to the purpose must be used, and while some operators have succeeded in some instances with ordinary pink base plate wax, if of pure quality; but while it might do for a simple cavity, its use in a general way would most surely lead to many failures, even in exceedingly careful hands who realize its shortcomings. A wax is required with a certain property of toughness to it and quite hard at an ordinary temperature, and that will not soften too easily in the temperature of the mouth or in holding in the fingers. However, there is danger in handling very hard wax as regards feather edges or sharp margins. The marginal lines should be exceptionally exact, and one can realize that a thin sharp edge may be turned or caused to yield a little without extreme carefulness, hence it is a good rule to follow to avoid handling as much as possible. When handling is a necessity, to trim and carve some part that could not be done in the mouth, it may be well or safer to slightly warm on the

cavity side—never melt in the least—and carry it carefully back to the cavity and gently press it down to place and with the occluding tooth closed upon it wipe over the margins once more as far as possible to bring them into perfect contact with the tooth. Opening the jaws the lingual margins may be treated in same way. Chilled and removed now, it should be perfect, and no chance taken of in any way changing the cavity surface.

Sometimes there are some feather edges or overhangs that should be removed. These may be mostly cut off with curved scissors while holding the wax by the instrument it is lifted out with. For this I like a flattened or spear point rather than a round explorer point, because on the latter the wax has a tendency to turn when one is getting rid of the tissue edges. Most any excavator is better to use than a round point. These thin overhangs should not be trimmed close enough to endanger the real margin. Further cutting away may be done on the gold when it can be done more exactly.

Let me say that it is the easiest thing to curl in one of those tissue edges, and make a scroll of it which the investment fails to flow about and into properly, with the result that it comes out in the cast a little solid ridge, often overlooked as a fault, but one nevertheless that keeps that edge of the inlay from going closely to place, and yet so closely perhaps that it may mistakenly be set as it is.

I have had a flake of wax, in trimming, fall onto the cavity side of the inlay and cling so as to resist washing away with running water. If not removed there would, of course, be a prominence in the gold to just that extent, and keep the inlay from going to place accordingly.

These are little things; but it is important that they be avoided; and they are so little, too, that they may be so easily overlooked in the model, and more difficult to note in the gold, also to get rid of then, if one can even determine what it is that interferes. Possibly the interference may not be noted at all, since the fit is fairly good, and hence the inlay is set and is faulty to just that extent. Before an inlay is set every margin should be critically examined to see if the contact is perfect.

When we proceed to the investing, the things to watch out for are bubbles and that the investment material goes assuredly into the depth of every pit and recess. Any lack of this, any bridging over of a little recess, and every bubble that becomes a pit in the mold,

ever so small or shallow, produces a corresponding fault in the gold which prevents close contact to the cavity walls or margins when put in the tooth, the same as the faults that may occur in the wax. The way to make sure of the investing material covering properly is to have the wax wet, and put on but a small quantity and make it flow where it is wanted by gently pushing it ahead of the instrument you are using to apply it. With proper care there should be no fault in covering the model. And again with proper care the rest of the investment should be so flowed that there should be no bubbles or other air spaces. This work, too, is important in many small details, which if overlooked bring trouble.

In drying out the investment heat will hurry it of course. No chance should be taken of heating it high enough to generate steam. It may be warm but should not be hot. The danger in turning the moisture into steam is that the whole investment may be ruptured by steam confined in the interior of the mass, or little explosions may occur in a way to chip out little pieces from the walls of the mold. Such pits on the cavity surface and along margins result in prominences on the gold, which again prevent the inlay from snugly fitting as it should. After the moisture is surely gone, the heat may be brought up gradually and yet rapidly enough to the height that may be required.

A good red-hot flask at the moment of casting facilitates the flow of gold to the small sharp recesses. A flask too cool might check the flow, even with the gold melted to the highest desirable point. When the gold does not get to the deep sharp corners, the cast may come out looking very perfect, except rounded corners are found instead of square and sharp ones.

Now, the force used successfully to overcome the globular tendency of melted gold and friction of small spruce hole, and which gravity does not accomplish on so small a scale as inlay work, is not necessarily applied as a push force. One outfit uses centrifugal force. The mold, swung in a circle rapidly after the melting throws the gold, in the only way it can go, into the mold. The vacuum process sucks the gold down in at the moment desired, by turning a stop-cock that opens the way to the vacuum chamber which draws the air down through the investment. This is just the reverse of pressure process, and yet the same thing occurs—a current of air

goes down through the porous investment and carries the slightly resisting gold with it. With a suction machine the melting flame is not withdrawn for an instant, but at the critical moment the gold goes down with the flame still on and the eyes watching just what takes place. This is considerable satisfaction.

The oxyhydrogen flame is produced by using nitrous oxide gas under pressure instead of air. Anyone using compressed nitrous oxide gas in cylinders can connect the gas to the blowpipe with a small rubber hose. Dr. Taggart's outfit embraces the nitrous oxide gas not only to make an intensely hot flame, but at one and the same movement the gas is shut off, an airtight cover comes over the flask and the compressed gas forces the gold down. Taking all together the Taggart outfit is perfection and positive in action. If all details are perfect up to this part there should be no failure in this machine.

The failures that have been recorded with other outfits are due mainly to failure to liquify the gold enough and with steam, some also not generating steam, and allowing it to escape in some other direction than the one that affects the gold.

In this part of the process it is well to emphasize by repetition that merely melting the gold is not enough for the very sharp castings that must be produced. If everything is as it should be the cast gold should be an exact counterpart of the wax model, and if that be perfect the inlay will be. If the wax has a fault the gold will produce it.

The precepts to be borne in mind are, that a perfect wax model must be made and carried to the investment without a scratch changed about margins and the cavity surface.

The investment must be done in a way to eliminate any chance of error there.

Melt gold to boiling, and allow no chance to chill in the least until it is sent home to the extremes of the mold.

A fairly good fitting inlay should not be tolerated; it should fit as close as the wax did. The difference between a perfect inlay and a fairly good one, as concerns margins in particular, is much the same as the difference between a new coin from the mint and one that has been in circulation until its corners are rounded, and showing the usual wear and tear.

(To be Continued.)

## PATHOLOGY.

---

BY GEO. W. COOK, B. S., D. D. S., CHICAGO, ILL.,  
DEAN OF DENTAL DEPARTMENT, UNIVERSITY OF ILLINOIS; PROFESSOR  
OF BACTERIOLOGY, UNIVERSITY OF ILLINOIS.

---

In the discussion of certain technical procedures of the cultivation of bacteria we are many times at a loss to know about how much explanation should be made in each particular technical manipulation, in order that one may follow briefly the outlines that may be followed in the identification of certain forms of bacteria. In two or three of our last papers we have progressed along the lines of the technical handling of culture media and the general preparations for cultivating, isolating and staining of bacteria for microscopic examinations.

In the discussion of this phase of the problem we have tried to give as briefly as possible the technique of how we would identify certain forms of bacteria, as it is always irksome to reach technical expressions that are of no interest to anyone except the individual who is interested in determining the findings that might be in an infected area of tissue.

One of the organisms that is of great interest and that has been extensively studied by the oral bacteriologist and pathologist is the diphtheretic bacillus. As to the identification of this organism, after we have gone through the cultivation of bacteria, in the manner above described, we then start with the method of placing the organism on a microscopic cover-glass, or sometimes where a direct smear can be made from the throat or the oral cavity on the microscopic slide itself we can stain the organism without placing it on the cover-glass at all. But the cover-glass method is the one that should be followed for scientific study and research. So we give a brief outline here of how to identify, microscopically, bacteria both in pure cultures and in tissue, provided you cannot get a sufficient number of the bacteria out of the tissue to make a pure culture, or for other reason you wish to study these organisms in tissue sections. The technical method here given will suffice to identify the bacteria in or out of the tissue as purely microscopic preparations.

It must be quite essential for the person who expects to study

mycology or microscopic determination of the low forms of vegetable life to be more or less familiar with the general subject in order that this technical laboratory method should be of any interest. But I can assure any one who is at all familiar with the outlines here given and the reading knowledge of the subject of mycology, that the simplest child could not fail to perform the laboratory technique in bacterial studies. And in this brief outline here of how to handle the technical cultivation and identification of bacteria is all one would need, provided he is well read on the subject of bacteriology to go into the laboratory and cultivate and microscopically identify any of these forms of organic life, that he might want to study in diseased processes.

It is important for us to bear in mind that to become technically skilled in any branch of study or research it requires time and patience as it would in constructing an inlay, gold filling, or any other study or process that requires both the action of the mind and the fingers. So in going over this list of things one should study every step of the process with great care, so that he may be sure failure will not take place and thereby gain the wrong perception in this brief outline of the subject under discussion.

#### METHOD OF DIPHTHERIA BACILLUS.

- a. Spread cover-glass.
- b. Dry in air.
- c. Fix. (Three times through flame.)
- d. Stain with Loeffler's methylene blue or Bronx's stain, 1 to 3 minutes.
- e. Wash with water.
- f. Mount in water.
- g. Examine.
- h. Dry.
- i. Mount in Balsam.

The technique is the same as for simple stain.

#### LOEFFLER'S METHOD. BACTERIA IN SECTIONS.

- a. Section placed in Loeffler's solution, 4 to 5 minutes.
- b. One-half per cent acetic acid a few seconds.
- c. Wash with water.
- d. Dehydrate. Alcohols.

- e. Clear. Cedar oil or xylol.
- f. Mount in xylol balsam.

## NOTES.

b. The weak acetic acid is used to remove the superfluous stain. Do not leave the section in contact with the liquid more than a few seconds, or all the stain will be removed.

c. The section should be well washed in plenty of water or it may be first immersed in water which has been rendered feebly alkaline by the addition of a few drops of saturated aqueous solution of lithium carbonate and then in plain water.

d. Alcohols of less per cent strength than the absolute remove this stain readily. The section should be brought as quickly as possible into the absolute alcohol. Leave the sections but a few seconds in each of the weaker alcohols. The decolorizing effect of the alcohols may be modified by the addition of Loeffler's solution until they are colored a pale blue.

## SCHEME FOR STAINING TUBERCLE BACILLI. ZIEHL-NEELSEN METHOD.

- a. Spread cover-glass.
- b. Dry.
- c. Fix. (Three times through flame.)
- d. Cover completely with Ziehl's carbol fuchsin solution.
- e. Boil.
- f. Wash with water.
- g. Decolorize with 3 per cent HCl in absolute alcohol one minute.
- h. Wash with water.
- i. Wash with 60 per cent alcohol, if necessary.
- j. Wash with water if "i" is resorted to.
- k. Counter-stain with watery solution of Methylene blue 1 to 5 minutes.
- l. Wash with water.
- m. Dry.
- n. Mount in balsam.

## NOTES.

a. If sputum is the material to be examined, it should be poured into a large glass dish over a black surface. With a sterile platinum wire select one of the yellowish cheesy particles, if these are not present select a small amount of the most purulent matter. Place on a



cover-glass, spread as thinly as possible with a sterilized needle, place another cover-glass over the spread mass, then taking the two glasses (which now have between them the sputum) between the thumb and index fingers, pressing gently, spread the mass as thin as possible. Draw apart with the fingers and allow to dry without heating.

b. Dry in air as for simple staining.

c. Fix in the flame the same as for simple staining.

d. Holding the cover-glass in the cornet forceps completely cover the glass with the Ziehl solution until the fluid presents a marked convex surface.

f. Wash with water as for simple staining.

g. It has been recommended to place the specimen in the decolorizer for one minute. A better plan, however, is, with an ordinary medicine dropper, to drop the acid alcohol on the upper edge of the glass which is held in a slanting position so the liquid will come in contact in its descent, with the whole surface. This operation should last one minute.

h. Wash with water the same as for simple stain.

i. If, after washing, it is found that there are still some thick portions which have not been decolorized, the glass may be rinsed in 60 per cent alcohol and again washed with water.

j. Stain with watery solution of methylene blue as for simple stain.

k. l. m. Same as for simple stain.

By this process the tubercle bacilli will be stained red while everything else will be blue. The same results are obtained by the method of Kales, which is as follows:

#### KALES' METHOD FOR TUBERCLE BACILLI IN SPUTUM.

a. Spread cover-glass.

b. Dry in air.

c. Fix. (Three times through flame.)

d. Cover with 5 per cent solution phenol.

e. Add saturated alcoholic solution of fuchsin until blood red color has disappeared.

f. Boil.

g. Set aside to cool.

h. Wash in running water.

- i. Decolorize by placing alternately 25 per cent nitric acid and water.
- j. Dry.
- k. Examine in drop of water.
  - l. Counter-stain with methylene blue.
- m. Dry.
- n. Mount in balsam.

Classification of bacteria by their action, in other words, the changes they produce in their surroundings with reference to certain physiological functions, therefore, we have pathogenic micro-organisms, those which cause disease. The non-pathogenic are those bacteria that under ordinary circumstances cannot produce disease. A saprophyte is an organism which lives on dead organic matter.

A parasite is an organism that lives on or in the body of a living animal or plant.

A bacteria that lives in the free oxygen of the air is called aerobic.

A bacterium that does not require the free oxygen is called anaerobic.

These organisms may perish when the free oxygen of the air is permitted to come in contact with them, even sometimes in the most minute trace.

Liquefying—Those bacteria which produce a ferment that liquefies solid nutrient gelatin.

Non-liquefying—These bacteria that do not liquefy solid nutrient gelatin.

Chromogenic—Those bacteria which produce pigment.

Non-chromogenic—Those bacteria which do not produce pigment.

Motile—Those bacteria that have independent motion.

Non-motile—Those bacteria that do not move independently.

The above classification does not include all cases, since there are organisms which are able to exist and reproduce at or between the extreme conditions mentioned. Such organisms are known as facultative. For instance, there are some varieties of bacteria that flourish best in an atmosphere devoid of oxygen. These same organisms are able to grow, but are less prolific, in an atmosphere which is composed in part of oxygen. We may also have facultative sapro-

phytes. These are more prolific when grown in the body of living host, but also reproduce on dead organic matter.

Fermentation, as it is ordinarily applied, means the breaking down of organic materials, forming aldehydes, acids and alcohols, and the specie of micro-organisms that are usually classed as fermentation micro-organisms is the yeast fungi, and will be studied with reference to their growth and the products that they form.

Laboratory experiments must be conducted on non-pathogenic bacteria, giving appearance of growth on culture media, both gelatin and agar-agar. Make microscopic slides, stain, and observe the form of these micro-organisms and present a drawing of each slide showing the different organisms present.

Study different forms of pathogenic bacteria, giving appearance of growth on culture media, staining properties, decide whether they are chromogenic or non-chromogenic. Make drawings of colonies as observed by the naked eye and also their microscopic appearance under a low power objective.

(To be continued.)

---

#### PYORRHEA FROM MILK DIET.

Mr. Goady gives a very detailed bacteriological analysis of thirty-six cases in which general symptoms were present and describes the cultural characters of the organisms isolated. In certain cases he isolated a lactose fermenting bacillus, and this organism would seem to have suggested to him that the infection in pyorrhea alveolaris may come from contaminated milk. Mr. Goadby also refers to the point that pyorrhea alveolaris is a frequent sequelae of infectious disease, during which the patient has for some time been upon a milk diet, and that the disease frequently occurs in several members of the same family, and would consider these points of evidence that milk may be the original source of infection.—*Dr. G. B. Web, Dental Magazine.*

# Our Foreign Department

DR. THOMAS L. LARSENEUR, Foreign Department Editor

## STUDY ON NOVOCAINE.

BY M. A. THIOLY-REGARD (DE GENEVE).

(L'Odontologie, Paris, March 30, 1908.)

It is almost two years since the Meister Lucius chemical laboratory at Höchst sur le Main, has given us a new local anaesthetic called "Novocaine."

During this lapse of time, a large number of dentists have so successfully experimented the anaesthetic properties of this substance, that many have discarded the use of cocaine.

Novocaine, or chlorhydrate of paraminobenzoyl—diethylamino—ethanol, is an alkaloid of synthesis discovered by Einhorn. It is seven times less toxic than cocaine, having no effect on circulation nor respiration.

It is soluble in one part of water for one part of novocaine and the solution may be sterilized by boiling, ebullition, having no effect upon its anaesthetic properties, nor altering its chemical composition.

From pharmacologic experiences of J. Bieberfeld, novocaine is three times less toxic than stovaine.

Dr. Braun, of Leipzig, has experimented with it and he had success in a number of surgical operations such as: ablations of cancers, uraniscoplasty, gastromenia, enterostomy, staphylorraphy, laparotomy, in cases of tuberculous peritonitis, and dental extractions, etc.

He has often used hypodermic injections of 0.25 centig. of a 2% solution of novocaine without any signs of toxication.

Drs. Danielson and Shmidt, have obtained anaesthesia by the infiltration method with a 1 to 2% solution, they have even used a 5 to 10% solution in topical application on the mucous and lingual membranes. In extreme cases, the dose may vary between 0.01 centig. to 0.10 centig. of novocaine. For dental extractions, B. Sachse uses a solution of 2% of novocaine of which he injects from 1 to 5 centimeters cubes combined with a sufficient quantity of adrenalin-chlorid 1:1000. A solution of 1% proved effective in the

following cases: sensitive dentine and resection of the apex of the root.

Owing to the absence of irritation, novocaine is an ideal anaesthetic; when used, there is no sloughing of the gum tissue.

Dr. Julius Misch, dentist in Berlin, says that with 300 cases of hypodermic injections of novocaine combined with adrenalin-chloride for both sensitive dentine and extractions of roots, that the patients never felt any painful sensations during the hypodermic injection or to notice any injury to the gingival tissue. Even where the gums were inflamed the action of the anaesthetic was sufficiently effective.

Rabarfeld maintains that novocaine does not weaken the action of the adrenalin, but on the contrary increases its action.

The experiments of Heinecke and Lowen have confirmed this statement; novocaine anaesthesia is prolonged by the adjunction of adrenalin chlorid; novocaine has no effect whatsoever on the vasoconstrictor properties of adrenalin chlorid.

With a weak solution of novocaine, the duration of anaesthesia is much longer than that of a higher dose and solution of cocaine.

Ischemia\* of the gums is not so pronounced as it is with cocaine. Sachse claims that the sockets after extracting bleed more profusely. Misch has verified that the alveolar anemia is not so noticeable with novocaine adrenalin as it is with cocaine adrenalin.

These few points are of great importance, because when anaesthesia is combined with prolonged and extensive anemia: pathological conditions arise which may become dangerous to the life of the tissues and organs depending upon their sanguine circulation. The action of cocaine adrenalin injections on the pulp and pericemental membrane is very dangerous, whereas with novocaine adrenalin the danger is lessened.

A 1:1000 solution of adrenalin chlorid, 1 to 3 drops for each centimeter cube of novocaine solution is too strong; in order to obtain the best results it will be sufficient to use 1 drop of a solution, 1:4000 adrenalin chlorid, for each centimeter cube of novocaine; with this solution the injection will produce anaesthesia for a period of one half hour to three-quarters of an hour.

Dr. Misch in his practice uses for 1 cm. of novocaine solution

---

\*Ischemia, bloodlessness, deficiency of the supply of blood to a part. Local anemia.

only 0.000012 (12 hundred thousandth) of adrenalin chloride, where as many preparations have contained 1 drop of a 1.1000 or, (0,0001) (1 ten thousandth of adrenalin chlorid).

When using for anaesthesia of the dentine, one must never lose sight of the preservation of the pulp; also when extracting teeth, the vitality of the pulps of the adjacent teeth should not be impaired, they always lose more or less of their sensibility, but the reaction generally takes place from 12 to 50 minutes, although in some instances this anaesthesia may be prolonged to a period of a few hours according to the quantity of adrenalin used. In consequence the danger of impairing the vitality of the pulp during local anaesthesia is in direct relation with the quantity of adrenalin contained in the solution. Therefore the less adrenalin in the solution, the less danger for the vitality of the pulp.

The dose of one drop of adrenalin chlorid 1.4000 for each cm. should not be exceeded; this dose will produce anaesthesia for about three-quarters of an hour.

For dental use novocaine injections are the same as with other local anaesthetic injections.

Although Cieszinski claims that it is possible to anaesthetize both sides of the maxillary at the same time, it is best to proceed with one side.

The solution of 1% is sufficient for extracting, but in complicated cases a solution of 2% containing 3 drops of 1.4000 adrenalin for 2 cm. may be used successfully. A complete anaesthesia was obtained with this solution in cases of pericementitis for extraction.

The horizontal posture which is called for with cocaine injections is not necessary with novocaine, although when high doses are used and prolonged anaesthesia is desired, this posture is advised.

When dealing with loose roots or teeth, fitting bands for crowns, or when anaesthesia of the mucous membrane is desired, a topical application of a 10% solution of novocaine is sufficient.

Here are two formulas which Misch has used in a number of hypodermic injections:

(A) Novocaine.....	0.10 etg.
Normal salt solution. ....	10.00 etg.
Borated adrenalin.....	(1:4000) 10 drops.

(B) Novocaine.....	0.10 ctg.
Normal-salt solution. ....	5.00 ctg.
Borated adrenalin .....	(1:400) 5 drops.

Eventually, one may use an additional drop of the adrenalin chlorid solution for 2 cm. of novocaine solution.

Novocaine solutions are prepared in the following manner: The desired quantity of novocaine is dissolved in sterilized water and it may be again sterilized by boiling, after which the desired quantity of adrenalin solution may be added. The 1:4000 of adrenalin chlorid solution should be kept in amber colored bottles with glass or rubber stoppers.

Novocaine solutions may be kept indefinitely and may be sterilized by boiling, although stale solutions should be filtered before using.

The after pain which follows cocaine anaesthesia is much relieved with novocaine, in some cases after anaesthesia had disappeared no pain was felt.

The syringes and needles which are sterilized with solutions containing sodium should always be carefully cleansed with the normal salt solution, for sodium decomposes novocaine.

At one of the last meetings of the "Societe Odontologique de Geneve," Mr. A. Bardet introduced to the profession a new sterilizer for hypodermic syringes and also mentioned this research and discovery of an ideal liquid disinfectant for both syringe and needles, which has no injurious effect on the metal. This solution is as follows:

Lime water.....	1 litre.
Trikresol. ....	20 grammes

Lime water is obtained by dissolving 2 grammes of calcium hydrate in 1 litre of distilled water; allowed to stand a day or two and occasionally shaken, after which it may be filtered and the trikresol added.

## TR. OF IODINE AS AN ANTIDOTE FOR CARBOLIC ACID.

REVUE INTERNATIONALE DE PROTHESE DENTAIRE.

(Paris, April, 1908).

Mr. Maberly noticed that the white patches on the skin caused by carbolic acid, were removed by the application of tr. of iodine. He conceived the idea to use it as an antidote for carbolic acid

poisoning. After experimenting, he noticed that the results with the tr. of iodine were much superior to those obtained in stomach irrigations with an alkaline solution followed by doses of alkaline sulphates, oils, etc.

Mr. Maberly relates the case of a man having swallowed carbolic acid, who was found with lips, mouth and throat very badly burned and it was almost impossible for him to talk. After having administered a glass of milk and a teaspoonful of tr. of iodine diluted in a glass of water, he immediately improved and could articulate and talk.

Cure was also effected in the following cases: A child three years old, same result with a dose of five drops of tr. of iodine diluted, every three hours.

Child two and a half years old cured in the same manner with treatment given thirty hours after accident, and child had been found suffering with convulsions.

---

### INGENIOUS METHOD OF OBTAINING SPACE FOR A CONTOURED CROWN.

---

BY MR. B. W. NEAVE, B. D. S.

---

(The Dental Record, London, May, 1908.)

Mr. B. W. Neave in a paper, "Contour and Polish of Fillings," read before the University of Sidney Dental Graduates' Association, Sydney, New South Wales, 1907, makes this excellent suggestion.

Referring to cases where the crowns of posterior teeth have been lost by gradual decay, and where the adjoining teeth have encroached upon the space they formerly occupied so greatly that there is not room for a properly contoured crown, he suggests that a gold shell crown be made accurately fitting the root and as nearly as desired shape as the space permits. To this, on each side, near to the occlusal surface, he solders a thin piece of gold plate, and forces the crown into position.

This he repeats at intervals until sufficient space has been secured; the crown is then properly shaped and finished and permanently cemented in position.



He contends that there should be an interproximal space of one-sixteenth of an inch on each side at the gum line.

By this method this can usually be secured with ease and certainty and with but little discomfort to the patient.

---

## THE EFFECT OF ABRASIVE SOAPS ON METAL PLATES

---

BY MR. WILLIAM FISK, OF WATFORD.

---

(Ash Quarterly Circular, London, January, 1908.)

Two ladies, sisters, were supplied with partial upper and lower gold artificial dentures, and were instructed to clean the clasps with any kind of soap—not excluding “Monkey Brand”—by putting a little cotton wool on the end of a match, rubbing it on the soap and applying it to the inside and outside of the clasps.

The lower partial dentures were made of two gold plates, Nos. 5 and 6, 18-karat, soldered together. Some three or four months later one was brought back with a tiny hole in it, caused, as was erroneously thought at the time, through the plate having been overpolished in the workroom. It was accordingly repaired.

After one set had been worn eighteen months the lady brought it back and complained of the condition of the plates. On examination it was found that there were holes in them, and the lady volunteered the statement that she had used “Monkey Brand” soap every day for cleaning them. Cotton-wool had been wound round a piece of wood, rubbed on “Monkey Brand” soap, and the plates polished with it.

Her sister, whose dentures had been in wear for about twelve months, had done the same. On examining this second set there was also evidence of abrasion.

I have sent the plates for inspection to Messrs. Ash, Son & Co., with these particulars.

It is only of recent years that abrasive soaps have come extensively into use, and this word of information may be of some service to some dentists who may be blamed for bad work, when the defect may be due to the powerful abrasive quality of the soap which is employed for cleaning the metal plates.

ASEPSIS

---

BY A. M. CARTER, AUCKLAND.

---

(The New Zealand Dental Journal, New Zealand.)

Take now dental asepsis—that ground on which every conscientious and scientific dentist prides himself. “Why, yes, we boil all our instruments for ten minutes after each time of using.” Excellent, but it has never struck you that these clean instruments are very apt to accumulate dust and bacteria, even in the drawer where they lie; also that the surgeon always boils his instruments just before the operation as well as after, and that the real reason for our immunity from septic trouble after extraction is not the boiling but the fact that nature is kind to us, and provides a rush of blood which effectually washes away all impurities; also what about the various accumulations of tartar, slime, pus, and decomposing food about the neck of the teeth?—do we carefully remove all these prior to extracting, and spend considerable time in rendering the parts aseptic, or do we press more or less of this filth, swarming with bacteria, inimical to the healing of a wound, up into the gums? Yet no evil results follow for the reason shown above.

Boil your forceps all you wish, be as stringent as you like, and you cannot be too particular with your sterilizer; but give Nature her share of the credit, and be reasonable.

Now, if we are (and rightly) so very particular about our forceps, lancets, scissors and other instruments, comparatively easily cleansed, what about our burs, which are so hard to clean, and so ready to skate about on the gum, scratching it, yet in many cases not producing that saving rush of blood? And do we consider that the little wire brush running on your engine, and which in the course of a busy day clears out the accumulation of burrs from many mouths altogether a good dodge? Can it be used safely? I am doubtful. But the problem becomes more complex when we get to nerve bristles.

Let us look at it in the light of a proportionate sum. If, as seems the case, it takes some five minutes' immersion in boiling water to render a pair of forceps innocuous, how long must a barbed bristle just withdrawn from a septic root be boiled? Can you feel safe with

anything short of making that instrument red hot in the flame of a spirit lamp, and so destroying it?

Again, where such bristles are used repeatedly, is our immunity from trouble not due more to the fact that they do not happen to pass through the apical foramen, and so come into actual contact with living tissue, than to our feeble efforts at sterilization?

Then there comes the question of hypodermic needles—should not a fresh one be used for each patient? Their very nature and method of application makes them the most dangerous of all our appliances. Is it possible to feel you have sterilized such a needle so that it is absolutely safe?

Then what about modeling composition? But this subject comes home too personally to most of us. I refrain from pressing the point, but trust you will not think I am treating this matter lightly. I recognize that the absolute cleanliness and sterilization is a necessity for any appliance used in the body. I only say we shall best conserve our own interests and those of our patients by considering each instrument in a spirit of reasonableness as regards its construction and the nature of the work performed by it.

### NEW SOLDER FOR ALUMINUM.

(Le Mois Scientifique et Industriel.)

This solder is strong and durable, having a high fusing point and flowing freely on aluminum. It is composed of the following alloy: Tin, zinc, aluminum and manganese. Chromium may be added if desired. The proportions for aluminum solder are as follows:

Tin .....	30 parts
Aluminum. . . . .	$\frac{3}{4}$ parts
Manganese .....	1/10 parts

The alloy containing chromium is composed of:

Tin .....	30 parts
Chromium .....	1/16 parts
Zinc .....	8 parts
Aluminum. . . . .	1 part
Manganese .....	q. s.

It should be fused in a closed crucible.

# ORIGINAL CONTRIBUTIONS

## TOOTHsome TOPICS.

BY R. B. TULLER.

No,  
We havent,  
Got no ottomobile yet.  
We auto hav, but we aint.

But pa got me a pair of roller scates—but I hav' to furnish the gasoleen.

No, pa sez he got a hunch that ottomobeels wuz goin' to be cheeper bineby, an' we'd wate.

Ma sez, an' then weed wate til livin' gets cheeper.

I tole pa it wuz gitten summer an' I wuz willin' to go 'thout shoos—barefut.

You don't kno me, mebbe; gess I am willin' to go barefut; caws if I haint got no shoos I don't haff to go to no Sundry scool.

An' we has som fun in Sundry scool too. Last Sundry the teecher she ast me, "Littel Joel Jerkum, can you tell me who waz the ferst man?"

She didnt ketch me. I jest winkt a wunk at her. She didnt wink back, but jest opened her eyes awful wide. Then she said, "Next boy."

But he wuz on, an' he twisted round sum, an' 'nen sed, "Oh, I kno, but I aint agoin to say it."

"Why don't you tell if you kno" she ast. "Oh, yes," he sed, "you want me to say Adam, an nen youse 'ud tell me to bite his ear. We all knos that, Miss Beach."

She didnt kno what ter say, an' so she held her paper up 'fore her face an' did n't say nothin' but "Johnny Jones I'm schokt."

An' the nex thing wuz the teecher in the nex seet she ast a littel gerl if she knowd who wuz the 'ciple who denied Christ; but they wuz all silent. Then she thot she'd help 'em an' she sed, "P;" an' then one little gerl she cawt on, an' she sang out bold as life, "Peter, Peter," and then they all cawt on, an' jined in in consert,

"Peter, Peter, punkun eeter, had a wife an' coodent keeper; putter in a punkun shell, an' then he kep her vurry well." That wuz jist all they knowd 'bout Peter.

That purty near broke up the scool, fer they all coodent help hearin', they sung it out so loud; an' then teechers an' all, lafft an' lafft, an' they coodent get sollum agin a tall that day. That wuzzent rite; fer them little gerls thot they sed it all rite an' that it 'blonged. That teecher's face got awful red.

All the same I jest as soon stay out an' heer the burds sing, an the beez hum, an' see the sun shine an' play craps—No, I mean mumblety-peg and things. I think its a shame to be shet up on the only Sundy ther is in a week.

Pa sez when we gits the auto heel take us all down to church in it, an' then heel jest run the thing up an' down the boolevard so's she wont cool off; an so's no one will steel her. Would hate to go an' spend a lot of munny fer a masheen, an' then hav her gone an' stole the first thing.

Ma sez, "What's the matter with chainin' her to the hitchin' post like you uster your bysickle. Pa sez "Oh, yes, an' hav' some feller cum along an' munky with the honk honk an' disterb the hull cherch; er puncher a tire, or steal the whip, er lap robe er somethin'." 'Course if I don't hav no shoos I'll help pa.

Pa's had sum more tantrums 'bout dentristy. You see we buy some things from a grouchy old duch grocery wooman, an' she has a boy, an her boy had a toothache; so she sent him over to dad to getter filled, with a 5 \$ bill to pay out of.

It wuz a grate big hole, un pop he hatter cap the nerv, he sed, an' then put in a big amallgum filling an' he charged the boy 2\$ and 50 cts.

Twas n't very long 'fore the boy wuz back an' sed his ma wanted him to take out the fillin' and give back the money. Pa 'splained he coodent doo that and so forth; but purty soon the old wooman come bringin' the boy. "Lookaheer, Mr. Docter Jerkum," she sed, "vat for you go put some gum in my poy's toot an scharge two-fifty. I not pay so much if it wuz silfer."

Pop lowed he dident put no gum in her boy's tooth; it wuz silver—a good hard permanint filling; besides he hatter cap the nerv; an he skinned up the boys lip an' showed her. "That's a good amallgum fillin,'" he sed.

"Yass; vell, you dake him rite out an' pud him in some oder body's toot, an' gif to me der monny. Ve don't vant no mal gumps, ner enny oder kine of gumps. Ve vant silfer, an only a toller's vorth. You mus tink ve vaz ole Rockenfellers to pay such a prisic like dot."

Pa tole her to cool off an' lissen. "In the first place I hatter treat an' kap the nerv; then I hatter put in the fillin over that, an' bild her out. It is really a three doller fillin' without enny thing else, and I only charge you two an' a haf for it all."

"Vell," sez Mrs. Grouch, "Ve dont tole you to done enny ting but fill um. Vat ve vant a cap on his nerv fer, hey? Who tole you to pud him on?. Who knows vedder his nerv haf a cap on er off? Ve dond care. You go ride away quvick un take out dose gump fillin' un dake off dose cap, or hat, or vat effer, un gif me dose two fifty, un ve go git a toller fillin' mit silfer."

Pa sed, "My dear wooman that is a silver fillin', an a big one—bilt out; an' I hatter put the cap on the nerve first to keep it from akin'. You dont understand."

"Dot is shust id, I dond understandt. Ve all has hat silfer pud in our teets, un fer a toller fer der big, un fifty cent fer de little, un ve dond got no nerf caps ner no akes. You say nerf cap, nerf cap, but ve dond see um. How enny von kno vedder it vas a red cap, a green cap, vite cap, er no cap? Vats de ust? You pud on a cap—you say—un den you covers him all up vid gump, an no body sees, un you scharge 2\$\$ un 50 cents. It vas von outrageous."

"Excuse me," sez pa, but there is no gum about it; it is silver."

"Oxcuse me," she gets back, "but you sed yoor own self it vas some kine of gump—mall gump or some ting, un den you go un say it vas silfer. Vy you don't stick by some trute, huh? Enny vay ve dont vant um, un you dake um oudt un gif to me der munny."

"Oh, no," sez pa, I put in most an hour and a half on that job—had to bild it out—a big fillin'—an' its worth the money, say nothin' about the nerv treatment. Nope, it goes as it is—it is al rite."

"Bilt it out!" she cried, "Vot I care vedder you bilt it out or bilt it in. If it vas cheeper to bilt it in, den you shoouldt not bilt it oudt. Ve dont vant to pay fer no scollups. Un two un a haf fer one un a half hour vork, dot vas schust robbers. You vas a schwindler, un I go tole effery body dot, an' I vill go by anoder zahnarts un I vill haf him dake out your gump stuff un I pull off de cap—if enny cap is on—un I hang him up in my shop, un mark him, "Dis vas a

schwindle by zahnarts Yerkum," an' dond you fergit it. Un if you come in my store some more I vill trow you oudt. She went off snarling, "Nerf cap! Malgump! Silfer! Liar! Ropper! Yerkum! Rous mittem!

Pa—well all pa sed, as he went to polishin' a rubber plate wuz jis, "Dam the Dutch!" But the way he made that wheel go 'round made the plate to ketch, fly accross the room an' broke off a tooth.

An' all pa sed wuz—well, I dunno; I duckt.

I don't know; I gess I'd ruther be a barber—some times.

---

### MEDICO-LEGAL ASPECT OF THE ADMINISTRATION OF ANAESTHETICS.\*

---

BY C. M. PADEN, M. D., D. D. S.

---

The administration of an anesthetic to a patient who is not a minor, against his will, constitutes an assault. When a patient has voluntarily submitted himself to be anesthetized he may, under the influence of terror, during an early stage of the proceedings, attempt to prevent further narcosis; he is then not sufficiently guided by his reason, and the administrator is bound, in the patient's interest, to take his own course.

The anesthetist, like any other medical or dental man, is liable to prosecution for malpractice; it then rests with him to prove that whatever steps he took were adopted after due consideration and because he believed them to be the best he could follow in the interest of his patient. Such questions as the following might arise: Did the anesthetist undertake a duty which knowledge, skill and experience had qualified him to fulfil? Did he employ the most suitable agent according to his views of the exigencies of the case? and did he administer it with due skill and by the most approved method? Did he possess himself of all necessary facts with regard to the patient's bodily condition? and did he make due allowance for these in the treatment which he pursued? In the event of an accident of any kind, did he adopt the right and appropriate treatment indicated in such an emergency? and was this done with due promptitude?

---

\*Final lecture of 32 delivered by Dr. C. M. Paden, at College of Medicine and Surgery, Chicago.

Anesthetics have been employed to assist in the perpetration of various crimes upon the person anesthetized. Thus, it is alleged, an anesthetic may be given without the consent of the person; or, when given with his or her consent to affect a lawful procedure, advantage may be taken of the anesthetized person's helpless condition to perpetrate a crime.

Can an anesthetic be administered without consent? Firstly, can this be done while the person is awake and in full possession of his senses? Formerly many cases came to the law courts, in which the complainant alleged that a handkerchief saturated with chloroform was waved before his face and unconsciousness followed immediately. This we know to be an impossibility; a period of time bearing from two to twelve minutes, or more, must elapse before an individual passes under the influence of chloroform, and during this time fresh supplies of the anesthetic are needed. Further, chloroform in most cases, produces so much excitement, that one person would find it difficult to keep the victim sufficiently still to complete the anesthesia, and would hardly do so without much noise and disarrangement of the victim's clothing. Further, unless food is avoided before the anesthetic is given, vomiting is very liable to occur, and with it a return to consciousness.

In attempt at criminal violence under an anesthetic administered without the victim's consent, fear, excitement, and struggling would all be against the possibility of arriving at loss of voluntary power without deep narcosis. It is very doubtful whether a person, be he an expert or not, could narcotize a waking adult against his will unless there existed a very unusual disproportion between the strength of the two individuals.

Although the time required to thoroughly anesthetize a patient is longer when chloroform is used than when ether is employed, yet, from the highly irritating nature of the vapor, ether is less easy to administer to an unwilling patient than is chloroform. In general, it may be affirmed that, if it is difficult to use chloroform for criminal purposes, the employment of ether presents greater difficulties. In a case reported, it was alleged that a burglary was carried out by men who chloroformed the owner of the property as he lay in bed and then ransacked the premises. The presumption must always be against the truth of such statements.



Can a person be anesthetized during sleep? On one occasion a skilled anesthetist attempted to anesthetize four persons during sleep. Three were awakened during the process. In his second series of cases, four out of six awakened, and in his third series only three persons awakened out of nine to whom he administered chloroform while they slept. Some claim that either chloroform or ether may be given without awakening the subject. I have no doubt that an expert anesthetist may be able to administer chloroform to some cases without awakening them, but I do not think it can be done with ether; in either case certain conditions must be present to insure success. The greatest skill, care, and familiarity with the anesthetic used might enable an expert to succeed, and then probably in the case of a heavy sleeper.

Many cases have now been reported in which the prosecutrix has affirmed that a medical or dental man has violated her person while she was under the influence of an anesthetic. So frequent are such charges that the greatest care must be taken in order to ensure the presence of a third person within sight of the administration of the anesthetic. No administrator of an anesthetic is safe from having such a charge preferred against him, if he and his supposed victim are alone it is simply a case of word against word. Further, the woman may be pregnant at the time of the alleged rape, and may subsequently give birth to an infant whose parentage she may find it convenient to fasten upon the dental or medical man.

But it is not only designing bad women who bring such charges; modest, virtuous and refined gentlewomen have been the accusers in these cases. In citing a case a young lady had chloroform administered to her by a doctor in the presence of a dentist and the young lady's father and mother. After the tooth had been extracted, and the patient became conscious, she steadily affirmed that she had been criminally assaulted by the dentist, and to this statement she adhered, although the four persons in the room tried to change her mind.

Very stringent views are now taken by the general medical profession with respect to "covering" which renders the position of a qualified medical or dental man who allowed an unqualified person to assist him by administering an anesthetic is a difficult one. Unless it should be shown that the aid of a second qualified medical or dental practitioner could not be obtained or that delay was detrimental to the patient, the question of "covering" would arise, and might be difficult to meet.

The question is often asked, Has a dental surgeon the right to administer an anesthetic? When we go back fifty years or more, to the beginning of the history of anesthesia, we learn that Dr. Horace Wells, a dentist of Hartford, Conn., discovered the anesthetic properties of nitrous oxide gas, the greatest anesthetic of modern times for minor surgical work, and that two years later Dr. W. T. Morton, a dentist of Boston, Mass., claimed the discovery of anesthetic ether, the greatest anesthetic ever discovered for major surgical work. From that day up to the present time, anesthetics have been taught in the dental school; graduates have administered anesthetics, and deaths have occurred, but, as far as I can learn, in no court in this or other countries has a dental surgeon, holding a diploma from a reputable school and a license from the state in which he is practicing, been condemned for having met with such an accident.

Although the teaching of anesthetics in the dental schools has, up to the present time, been quite limited, I do not think that the medical schools have done much better. In fact, I feel convinced that the medical schools have graduated as many men who were as little qualified to administer anesthetics as have the dental schools. However, in recent years, that is since the advent of our State Board of Examiners, both the medical and dental students are compelled to pass a fairly rigid examination in the subject of anesthesia. And I believe that hereafter the dental and medical students who graduate from our schools will be required to show that they are duly qualified to administer all anesthetics.

It has often been said that a dental surgeon has the right to administer an anesthetic lasting from one to two minutes, for the extraction of teeth. I feel quite safe in saying that if the laws of our country allow a dental surgeon to administer an anesthetic, which places a patient in a dangerous unconscious condition, I do not think there could be any restrictions placed on the length of the anesthesia, whether it be from one to two minutes or one to two hours, according to the nature of the operation. Further, it has been proven that in most cases of anesthesia the greater liability to danger is during the induction period. My advice to every dental surgeon who means to administer anesthetics is to read up thoroughly on this subject, so if he should be so unfortunate as to meet with an accident he will be able to appear in any court and prove that he is thoroughly posted in the administration of anesthetics.

## LEGAL RESPONSIBILITIES OF ANESTHETICS.

It has been a subject of much debate with whom rested the responsibility of the choice of the anesthetic, the surgeon who operates, or the anesthetist who gives the anesthetic? Clearly this must depend entirely upon the understanding which exists between the two. If the anesthetist is called in, as an expert, to decide which is the best anesthetic for any given patient, his must be the sole responsibility; while if he is present simply as an assistant to the surgeon to give in the best possible way the anesthetic which is named by the latter, his responsibility can extend only so far as the actual administration is concerned. If the two disagree, the surgeon, insisting upon an anesthetic which the anesthetist conscientiously believes would jeopardize the patient's life, cannot cover the anesthetist, and the latter has but one course to adopt, namely, to retire from the case. As, however, the experience of the surgeon may equal or exceed that of the anesthetist, especially if the patient is the former's, to retire from the case is a grave step for any anesthetist to adopt, and could only be justified in most extreme cases. It is best, in all cases of doubt, that a consultation between the surgeon and the anesthetist be held and the question of choice of anesthetic and method be discussed deliberately from the two points of view.

## ANESTHETICS FOR ILLEGAL OPERATIONS.

How far, in the eyes of the law, an anesthetist would be regarded as an accomplice to the operator is at present undetermined by judicial decision. In the event of the anesthetist becoming acquainted with the nature of the proposed operation before the anesthetic was given, he would certainly be incriminated if he then assisted in carrying out the operation by administering the anesthetic. While it is not the business of the anesthetist to inquire into the nature of any operation, or criticize the way in which it is performed, he should make himself acquainted with the fullest details of the case if he has his suspicions aroused. When any doubt is present in his mind as to the legality of the operation he will be wise to retire from the case.

Much more could be said on the medico-legal aspect of the administration of anesthetics, but time and space will not permit.

In closing this lecture, I think I can be safe in saying that this class has received more on the subject of anesthesia than any class of graduates from any school in this country. I thank you.

## DEVITALIZATION OF THE DENTAL PULP WITH ARSENIOUS ACID.

BY THOMAS L. LARSENEUR, D. D. S., CHICAGO, ILL.

Since devitalizing of the dental pulp is a treatment which we are called to apply almost daily, it is of great importance to proceed with this operation with the greatest of care, as in many instances the success of such treatments is dependent upon the care that you have exercised.

We have at hand several preparations on the market for the devitalization of dental pulps; the proper choice of these is of great value to the dentist, and of more importance to the patient.

We have at our command three different forms of arsenious preparations: Arsenical paste, arsenical disks and arsenical fiber.

The use of arsenious acid-arsenic trioxid was first introduced in 1836 by Dr. Spooner, and some fifty years ago Dr. J. D. White introduced the following paste, which is the base of all present arsenical pastes:

R—Arsenious acid. . . . .  
 Morphia sulph. . . . . a.a.  
 Carbolic acid. . . . . q. s. ft. paste  
 M.

Dr. J. F. Flagg later gave the following formula:

R—Arsenious acid . . . . . gr. 10  
 Morphia acetat. . . . . gr. 20  
 Ol. carophyllum . . . . . q. s. ft. paste  
 M.

The application of the paste is rather dangerous in some cases where the cavity extends close to or beyond the gum margin, and sometimes to the pericemental membrane; if a very small amount of the paste should for some reason or other come into contact with either gums or pericemental membrane, the action of the arsenious acid on them would be very injurious and probably would destroy their vitality, which in such cases would require special treatment.

If you wish to add a special compound to the paste, it requires some time before it will be incorporated. After application of paste,

it may be displaced and spread over the borders of the cavity on to the surrounding tissues without your notice.

These are the reasons why I do not advise the use of arsenical paste.

With the arsenical disks, these accidents are not so liable to occur, but when you wish to add other substances to them, you will find it difficult as these disks are composed of a base of asbestos upon which the arsenical preparation has been coated and through some process become fairly hard; they will readily dissolve if any solution is added to them. If you wish to apply a very small quantity of arsenic, you will find that they are very hard to manipulate without being destroyed. It is also very hard to tell the dose of arsenic contained in them. As the quantity of arsenic desired is not the same in every case, I do not consider the use of arsenical disks as practical.

We now come to the arsenical fiber, which contains: arsenious acid, creosote, tannin and opium. This preparation of arsenic is the best, because it will not spread like the paste, nor will it be displaced by the cement or gutta percha. You may apply the dose desired according to the case, and no matter how small the quantity you use, it will take effect upon the dental pulp. Its action is probably not as active as that of the paste or the disks, but if directions are carefully followed as given, the patient will never suffer from odontalgia while the pulp is being devitalized. I have been using it for the past ten years and must say that in all this time but one or two cases was troubled with a slight case of odontalgia, which was relieved by making a second application. Following is the method which I used:

I first place on a glass slab a drop or two of creosote (using preferently, beechwood, Mercks); to this I add enough of cocaine hydrochloride small crystals (flakes) to make a saturated solution; then the desired quantity of devitalizing fiber is added to cocaine and creosote; the cavity is now dried thoroughly. The rubber dam is very seldom used for this treatment, as usually cotton-rolls and saliva pump will enable me to perform this operation without moisture gaining access to the cavity before treatment is completed, although in some cases it is necessary to use the rubber dam.

The surplus of creosote should be removed from the fiber be-

fore it is applied to the cavity, the fiber should again be sponged with a ball of cotton after it is placed in cavity, then cement or gutta percha may be applied according to case. If gutta percha is used, you will necessarily use some pressure, but the cocaine will prevent irritation of the pulp.

This treatment has been applied in cases of acute-pulpitis where the patient had been suffering for several hours from odontalgia, and this treatment not only gave instant relief, but no pain nor unpleasant sensations were felt during devitalization.

This treatment does not require exposure of the dental pulp; in fact, in cases where it is necessary to devitalize the pulp of a sound tooth, a small cavity is made with a burr at the most convenient point and a very small quantity of the fiber prepared as above described is applied to the cavity and cemented. This may be left in the tooth for a week, instructing the patient that if the tooth should become sensitive to heat, he should without delay return and have another treatment applied. At the next sitting, if the tooth is sensitive to heat and to the touch, it is advisable to open into the pulp-chamber, taking care not to allow the bur to become heated, as this would cause pain to the patient. If the tooth is not affected by heat or the touch of instruments, it is not advisable in such cases to drill into the pulp-chamber, owing to the vitality that is left in the pulp and to the pain you might inflict upon the patient; it is best in such cases to give to the tooth another treatment of arsenic which may remain in the tooth three or four days, after which you may drill into the pulp-chamber and fully expose the pulp. It may be necessary for you to still apply another treatment of arsenic before the pulp is completely devitalized; this last application may remain three or four days.

The susceptibility of some patients to the action of arsenic is greater than to others. In fact, the treatment does not always act the same with all the teeth in the same patient. I have seen cases when dealing with pulp-stones (pulp-nodules) where four or five treatments had to be applied before devitalization of the pulp had taken place. So, under such conditions, it is rather hard to give a definite time for the period required for devitalization.

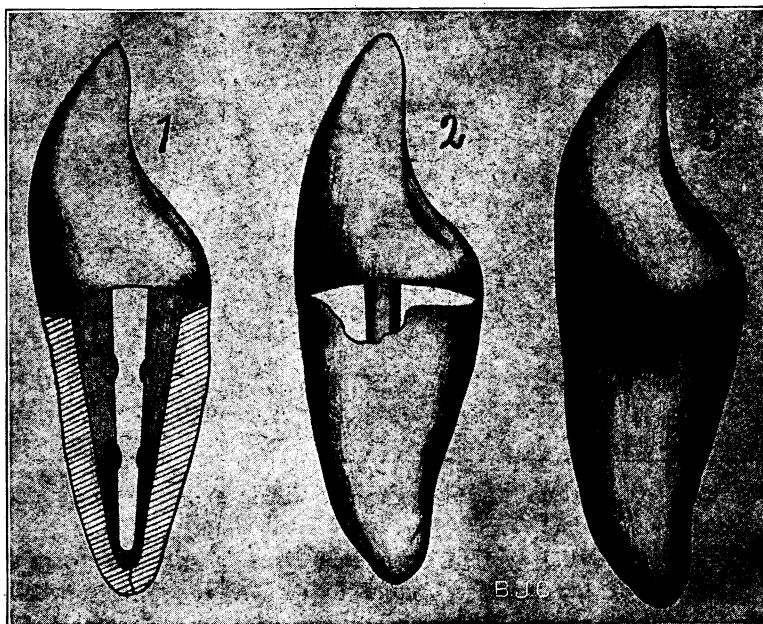
*(To be continued.)*

## ABSTRACTS AND SELECTIONS.

### ENLARGED METALLIC POSTS TO CONFORM TO BADLY DECAYED ROOTS.\*

BY DR. B. J. CIGRAND.

The dental profession during the past five years has devoted much attention to crown and bridge work, the consideration of the superstructure, root preparation, band construction and crown forma-

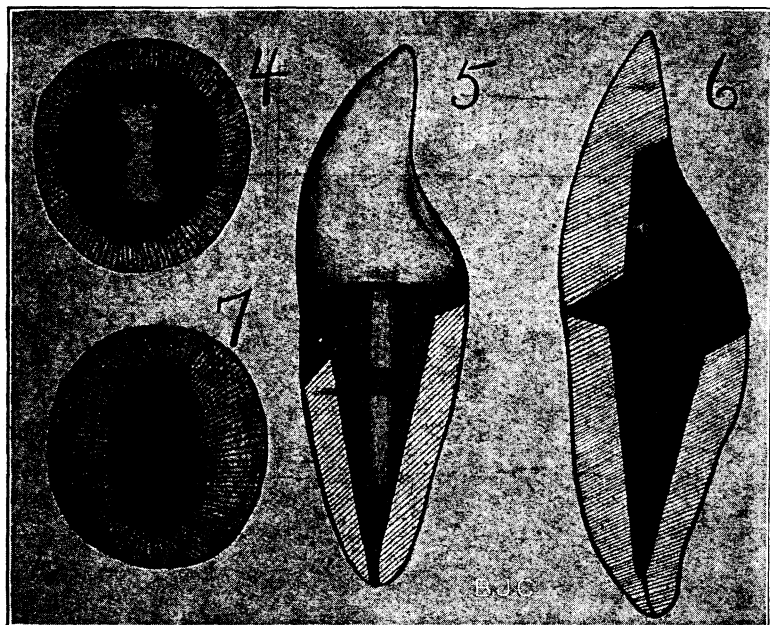


tion. We have arrived at a point where we fully realize the importance of the mechanical principles involved, in that we appreciate the force of the jaw and the necessity of perfect fit on the roots.

\*Read before the Southwestern and Fifth District Michigan Societies, at Grand Rapids, April 15, 1908.

In this consideration of force, we have in a measure forgotten the importance of the basic purpose which determines the ultimate success of the mechanism. Imperative as it may seem to fully comprehend the superstructure, the substructure of a crown or bridge, its anchorage is indeed primal. The one is no more essential than the other, and both are indispensable.

In the past we have been concerned in the construction of the bridge, and have practically lost sight of its fundamentals, and if



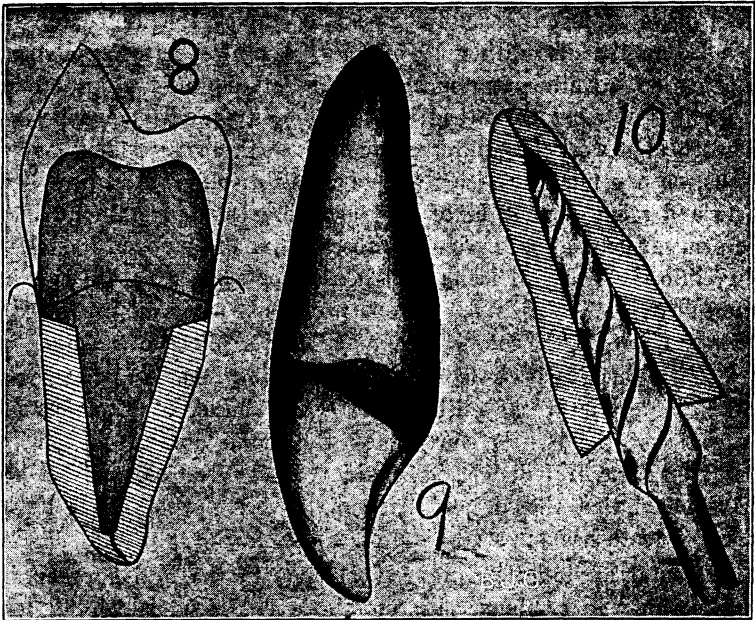
its pillars of location are disregarded, discouraging failure must be the climax.

In my mind the opinion exists that there is still a disposition on the part of too many operators to employ the forceps whenever the dental organs present conditions slightly unfavorable for a filling, inlay, or crown. There is much comfort, however, in the fact that a happier era is upon us, for the dentists are in eager search for a method or system which will make it possible to restore badly decayed roots and protect the dental arch. The general public is gradually educating us to a full realization of the



importance of saving teeth, and the time is not far distant when "the loss of a good tooth will bring sorrow to the entire household."

It is deplorable that too frequently the lateral or first bicuspid roots are extracted, and a tooth supplied by some system of bridge work, cutting down the sound adjoining teeth, collaring them with gold, when it was within the province of dental prosthesis to save the root, and place upon it an individual crown, such as would afford the natural denture a hygienic substitute fully in accord with



physiological laws. Nature scorns to be tied up, or confined, and the present systems of bridge work, with their yokes of gold, are contrary to nature and work ill results—more especially when the load is unbearably large, as in the case of an attachment of five or eight artificial teeth resting on two roots. How preëminently better to save these roots by affixing individual crowns. To avoid applying bridge work in every instance possible, and attach the individual crown instead, should be the earnest ambition of every member of our profession. Yet some continue advocating large bridges on weak foundations and inefficient anchorage.

The individual tooth as nature supplies it is independent of its neighbor, being only in touch at what is known as the contact point, and the principle of mastication can be shown as complete in one superior and two inferior teeth or vice versa. That we should all strive to preserve this separateness must appeal to all who value nature as a model in creation.

We are all applying bridges where individual crown work would be far more logical. Bridge work has suffered because of its injudicious employment, but that is the usual complaint against all new discoveries or inventions. Eagerness to employ the find or creation has led to the discontinuance of many a praiseworthy appliance or medication. Enthusiasm is a necessary attribute in all progressive work, but it must be curbed by a judgment founded on experience. That bridge work has suffered much through too prevalent applications, no one familiar with its history will dispute. Advances in the arts and sciences must be of slow growth. Like government affairs, reform must be of so gradual a process, that unbeknown, it steals its way into the hearts of men; for when of too rapid a nature it is both unhealthy and short-lived. In our profession as in all organized society movements, the conservative must be the "pillars of strength."

The conservative practitioners throughout the land have recognized the error of the enthusiastic bridge builder. They have observed that the hastily constructed Richmond crown with ill-fitted band has inaugurated a siege of periodontal and alveolar troubles. They have noted that the all-gold telescope advocate who caps a slightly decayed tooth has outraged his profession.

Dental annihilation properly belongs to the oral surgeon, and has nothing in common with prosthetic dentistry, which has come to mean dental substitution and preservation. Crown work has advanced in theory only when the theory has brought fruit in actual practice. In its two-fold evolution it absorbs from every available source, which tends to broaden its art or perfect its science, and in consequence calls to its aid mechanics and medicine.

In a prominent dental society not long since, the question of saving bad roots was discussed, and some few entertained the idea of using gutta-percha, advocating that this material admitted of easy removal of the crown and also acted as a soft, yielding cushion for the porcelain substitute. I am not prepared to accept this method

as practical or hygienic. I doubt the practicability of such a procedure; besides it indicates a temporizing effort. But this is not the main reason for my objection to the use of gutta-percha alone; I cannot believe that a crown which is set on a material which acts as a cushion is sufficiently dense to exclude the oral fluids. If it yields, springs and changes to every form of pressure, it goes without saying that the material is porous and in consequence harbors the oral fluids, and this would quickly destroy its efficiency, as also allow lodgment of debris. I have tried this method and have discarded it, since I have greater faith in the employment of cement in combination with metal. If any practitioner depends on gutta-percha, may I ask that the next case of crown nor bridge work he is called upon to reset, he will do himself a great favor by subjecting the removal piece, with its aged gutta-percha, to a microscope? That ocular object lesson will suffice as to the cleanliness or efficiency of this deteriorating, temporizing material.

If I have convinced you that these badly decayed roots can be saved and made normally useful, I shall feel that my years of thought and study on this line have not been in vain. The method I have incorporated in several papers and clinics during the past ten years, though not until within the past two years have prosthetic operators appreciated the principle underlying my suggestion.

If the root or roots in question are still possessed by sound of healthy tooth substance there is no reason why they should be retracted. If you can attach to them a firmly anchored, well fitting crown and accord to that root the natural exercise of mastication, you restore to its peridental membrane a renewed circulation of blood and in turn recreate a vigorous dental antagonism,—the basic principle of sound dental organs,—while if the root is allowed to remain uncrowned and its exposed portion is denied contact, certainly nature will inaugurate an effort to throw off the useless member. But observe the rules of mechanics, and apply a crown to this apparently drone root. The change which proceeds is astonishing and the prosthesis is perfect.

The method is simple, and effective. Prepare the badly decayed root as one in ordinary practice, ream out all the broken-down tissue and depend on sound structure; fit the crown, be it Logan, Davis, Brewster, Justi, Twentieth Century, or other crown of that character,

in the usual manner; just before setting same, apply a bit of wax to the metallic post and inset in cosmoline canal. At first introduction you may have an excess of wax; remove and soften over alcohol flame and trim where indicated, then re-insert and after getting a good, accurate adaptation, the initial step is complete. Then take the crown, with its wax encased post, and invest entirely in the ring of your casting apparatus, and after freeing the wax from investment and being assured of the perfect dryness of the case, proceed to liquidate the gold and by means of air, steam, or better still, suction, cast the case. While gold is the metal indicated, I must confess, after diligent investigation, that Acolite will practically give the same results, in that as a pure metal it is acceptable to the tissues and gives us all the desirable qualities so essential in a metal permanently located in the mouth. (Fig. 1.)

There are innumerable cases where the mesial or distal surfaces of roots are broken down, and by this method all you need to do is to drill away the decayed portion, adapt the wax and cast as already indicated. (Figs. 2 and 3.)

In shaping root canals for crowns or bridges, it is a mistake to employ a large one and produce a large circular opening into the root to receive the metal post. Choose a small reamer, and by giving it an anterior-posterior movement you are enabled to cut an opening of an elliptical character, and you leave the root structure thick at its lateral sides, where the major strain falls and where the root must of necessity be the strongest. Further, this rhomboidal opening thus affords additional anchorage to the crown. (Fig. 4.)

It is evident that a crown set as recommended cannot loosen or fracture the root unless the post first stretches, and this, I believe, is the cause of many of our crowns loosening. The primary cause does not lie hidden in this, however, but in a factor of which I will speak later. If the posts in the Logan or in any of the full porcelain crowns were made of iridio-platinum instead of pure platinum, there would be less likelihood of the yielding process, and the stability of the crown would be more assured.

This form or casting so accurately fits the canal and adjacent parts that independent of cement the crown would be held firmly in position; but with a film of cement or insoluble varnish or fluid the crown is definitely lodged. (Fig. 10.)

Then there are cases, not infrequently met, where the anterior half of the root is partially broken away and these cases tax the ingenuity of all operators; but by the method I advocate, these distressing cases are made simple indeed. Just pack cotton or gutta-percha into the space, crowding away the gum tissues, then dismiss the patient for an appointment on the following day. When full and easy access is accorded to the space, and after packing in wax both in root canal and broken anterior aspect, you remove the entire mass of wax and cast as already noted. (Fig. 5.)

In the event you wish to employ facings to harmonize with remaining teeth the method is also very adaptable, since the facing is ground to fit, being backed up by wax, and after removing entirely you have produced a very acceptable crown, and not only saved a bad root but restored a denture. (Fig. 6.)

It may seem like an extreme statement, but this method should be employed in the setting of every crown and bridge, since it gives promise of permanent work. Besides it is in accord with the science of mechanics, an element which deserves our constant attention.

The all-gold shell, when telescoped over a large amalgam filling, often results in failure because of the action of the mercury in the filling, and when this filling is anchored by screws other than gold or platinum, it will invariably result in failure, notwithstanding that the gold crown was constructed without a fault. The anchorage was insufficient. (Figs. 8 and 9.)

In a case of this character just adapt the wax and build up same to conform to a natural crown properly shaped, then remove and cast, set same with cement and you have formed an anchorage for the gold crown not only congenial with the surrounding tissues, but absolutely compatible with the gold telescope it is to receive, since Acolite in this instance is preëminently indicated because of its virtues in conjunction with gold and tissue.

Now, this method of restoring badly decayed roots is not advocated by me because of its production of restorations in a simple way, though it does accomplish this event, but because it conserves dental organs, and brings to our enfeebled humanity an element of redress, and accords to the philosophy of mastication—an attribute indispensable, and yields pronounced results.—*Bur.*

**"MOST IMPORTANT MECHANICAL AND CHEMICAL PROPERTIES OF SILICATE AND ZINC-PHOSPHATE CEMENTS."**

---

DR. MAX KULKA, TESCHEN, GERMANY.

---

Paper read at the seventy-ninth meeting of the Deutsche Naturforscher & Ärzte at Dresden, and at the yearly meeting of the Landesverband Ungarischer Stomatologen at Budapest, September, 1907.

Printed in the Deutsche Monatsschrift für Zahnheilkunde, 1907.

At the seventy-seventh meeting of the German Scientists and Physicians, at Meran, Dr. M. Morgenstern of Strassburg, discussed the results of his investigation of the physical and chemical properties of the silicate and zinc-phosphate cements.

The results of this exceedingly laborious and careful work of Dr. Morgenstern, may lay justly, claim to scientific importance, but have, I am sorry to say, only a relative value for us dentists, since absolutely no reliable conclusions can be based on them regarding the behavior of the cements in the oral cavity. They contradict, in a high degree, the practical experience in the mouth of the patients with the very cements which Dr. Morgenstern examined. We must therefore conclude that some factor has been left out of account which is of absolute importance for the valuation of the cements.

The error lies in this, that the dental cements are substances which, for the purposes of an examination, should under no circumstances be left in a dry medium, as Morgenstern left his samples, but, imitating the use to which they are put as filling materials, should for some time be kept exposed to the continuous action of saliva, i. e., of water and certain solutions at blood temperature, before their quality is tested.

What influence such keeping in a liquid medium can have upon the development of the physical properties and the chemical behavior of the cements, appears from the following:

Almost every substance has a certain (often true) immeasurable degree of solubility in water, therefore also in saliva. This solubility, though often very small, can very well exert, by loosening the entire structure, a considerable influence upon the cohesion and with it upon the relative solidity, in a hardened cement.

The hardening of a cement is naturally connected with the progress of a chemical reaction, which at the beginning may be a stormy one, decreases after the greatest part of the active components have been bound, steadily and gradually according to the law of mass effects; later on the progress of the reaction is further delayed quite considerably by the increase of the interior friction, which is due to the substance passing into the solid state. We cannot expect therefore the complete formation of the cement until a long time after we expose the fillings to the saliva, or rather, have to expose it.

The action of the saliva, before that complete formation, no doubt, influences the development of the mechanical properties of the cements to a high degree, since it may disturb the hardening reaction and may even stop it.

It was therefore necessary to examine the physical properties of the cements, after the specimens had been for some time under saliva, and the figures found by Morgenstern cannot form a reliable standard for the physical behavior of the cements in the mouth, the less, since he found highest qualities in a cement which stands the action of saliva or water scarcely a few hours, perhaps even minutes, without crumbling almost to powder, and which were therefore discarded by the practitioners a long time ago.

Starting from these considerations, and because the manufacturers are constantly improving their preparations, so that anyhow the figures found two years ago by Dr. Morgenstern can no longer be correct, and since that time new preparations have appeared on the market, I undertook a new investigation.

I have, of course, endeavored to determine the respective properties of a cement only after the specimens to be examined had been under similar conditions as those met with in the mouth.

I selected for the examination the following cements:

#### SILICATE CEMENTS.

- ( 1 ) Ascher's Artificial Enamel;
- ( 2 ) Astral;
- ( 3 ) Harvardid Improved III;
- ( 4 ) Harvardid Improved IV;
- ( 5 ) Hoffman's Improved Porcelain Substitute;
- ( 6 ) Schafer's Plastic Porcelain;
- ( 7 ) Dr. Schonbeck's Silicate Cement;

- ( 8 ) Smaltid;
- ( 9 ) Dr. Speier's new Silicate Cement;
- (10) Dr. Wolfson's improved plastic porcelain filling.

## ZINC-PHOSPHATE CEMENTS.

- (12) Harvard Cement.
- (13) Love's Agate Cement;
- (14) De Trey's Impervious Cement;
- (15) Lynton's Cement.

At the very first, I practiced for awhile the manipulation of the several cements, in order to familiarize myself with the various properties of every single preparation.

By keeping exact notes about the manner of working of every single specimen, no matter from which cement it was taken, and by comparing the same with the results of the later test, I become convinced that the directions which are enclosed with every package must be followed most closely, in order to obtain a good result. I have endeavored by long series of tests to ascertain the proper proportions of mixing powders and liquid; I state the arithmetical means in the following table:

TABLE II.

Mixing proportions.	Powder.	Liquid.
Ascher's Artificial Enamel.....	100	59.49
Astral. ....	100	202.72
Harvardid Improved III.....	100	50.32
Harvardid Improved IV.....	100	53.84
Hoffman's Improved Porcelain Substitute.....	100	45.46
Dr. Schonbeck's Silicate Cement.....	100	73.32
Smaltid. ....	100	73.32
Dr. Speier's new Silicate Cement.....	100	56.62
Dr. Wolfson's imp. Plastic Cement.....	100	74.84
Harvard Cement. ....	100	48.75
De Trey's Cement.....	100	40.01
Lynton's Cement. ....	100	81.05

Most difficult to work are, according to my experience, Astral among the silicates, and Lynton's and De Trey's among the zinc-phosphates, since they harden far too rapidly.

I will now take up the real subject matter of my paper. I prepared carefully three samples of each cement and filled with them



some conical polished holes in an ebony plate, which had been fastened upon another, also absolutely smooth plate (Figs. A and B).

These holes were coated before the filling with the slightest trace of purest vaseline, in order to avoid any adhesion.

After the hardening, the samples were pushed out, and after 30 minutes they were placed under saliva which had been found normal, with an addition of water in the proportion of 1 to 3, in small standing vessels at 360 C. in the thermostat.

The samples remained seven days in this liquid, which was renewed twice daily and was replaced in the evening by pure water; they were then taken out, dried, left for some time at the air, and were then examined.

Only Ascher's Artificial Enamel proved to be absolutely unchanged. The surface of this cement appeared under the magnifying glass perfectly smooth and highly shining, as if polished, and that in a dry state as well as when wet.

Slightly affected were Astral, Harvardid Improved IV, Harvard Cement, Lynton's, Love's Agate, Speier's, Wolfson's, and De Trey's Cement.

The specimens of Astral showed in general a soft asbestos-like sheen, on some of them, when inspected through a magnifying glass, one was struck by reticular lines covering the conical surface and forming fine meshes.

Harvardid Improved IV was without sheen. One could see through the magnifying glass a fine hair crack here and there; Speier's Silicate Cement was likewise absolutely without sheen, but little changed in other respects. Wolfson's plastic porcelain filling was without sheen and its surface showed a few chalk-white spots, as if the specimens were mottled. The zinc-phosphate cements, Harvard Cement, Lynton's, De Trey's Cement appeared, of course, as not shining, chalk-white substances, on whose surfaces here and there dots of erosion could be noticed; the same could be observed in Love's Agate, here and there one could see, besides, a fine hair crack.

More strongly attacked proved to be, on their examination: Hoffman's Improved Porcelain Substitute, Dr. Schonbeck's Silicate Cement, Smaltid, and Harvard Improved III.

Although they appeared shining and transparent in a moist condition, these properties disappeared during the drying, and one could

notice in all these cements that a reticular system of lines forming fine meshes became more and more distinct on the drying surface.

The samples of Hoffman's Porcelain Substitute, Schonbeck's Silicate Cement and Smaltid looked as if they had been covered with some fine white powder, and one could in fact easily scrape off with the finger nail a fine white dust.

The surfaces were, in consequence, very dead and rough. If one dropped upon the samples, the water disappeared quick, as on sugar; when wetted more, the samples became transparent again.

Schafer's Plastic Porcelain proved to be completely destroyed, even after a short stay in saliva and water. The specimens were without shine and showed deep gaping cracks and clefts. The dry samples broke up at its examination, in conformity with its cracks and clefts, like dry mortar. On account of these facts, I excluded this last cement as absolutely worthless from the further investigation; even when I tried previous drying of 3 to 24 hours, it split promptly within a short time under moisture.

I pass now to the determination of the mechanical properties.

In order to obtain an always uniform mixing, and a reliable preparation, I took as far as possible, the quality for every sample not larger than is required in general for an average filling, and I mixed the samples very carefully and exactly complying with the directions.

The mechanical properties of fillings which are of account for our purposes, are the following: Strength, hardness, imperviousness, and adhesion.

The properties of strength, namely resistance to pulling, to pressure and to fracture, are related to each other in a mathematical proportion, so that it might suffice to determine the resistance to pull alone.

Nevertheless, in order to make any results more sure, I determined the resistance to pull, fracture, and to pressure separately, the more, since the latter two kinds of strength are of special interest to us, considering that the filling materials are chiefly relied on in regard to those two points. The sample required for the purpose, I prepared in a similar manner as above described, by means of two ebonite plates, one of which had some larger 7 mm. long bored holes (Fig. 2). I will say here that I, in this as in every one of the fol-

lowing experiments, always took for my tests three samples of every cement, repeated the tests several times so as to verify the results, and that I give as the figure obtained the mean figure of all results found.

Into these bored holes I put round linings, hermetically fitting, which consisted likewise of ebonite.

The linings have in their centre a bared hole and are composed of two halves, equally large, with contact surfaces which hermetically fit together.

The linings for the making of samples for the tests of the crushing strength have a simple cylindrical boring, 3 mm. wide and 7 mm. deep (Fig. 7 and 7a), the boring of the linings for the making of the samples, for the pulling and the breaking tests is likewise 7 mm. deep, but the topmost 3 mm. of it are conically, and the lower 4 mm. cylindrically shaped. The finished samples formed in these linings have the form of a cylinder 4 mm. thick and 4 mm. high which is topped by a truncated cone attached to it by its lesser plane (Figs. 2a and 2b).

The loose samples were freed of any adhering vaseline by means of alcohol and, in view of those cements which were slightly attacked, were placed not until after three hours in the thermostat under saliva and water. They were coated with varnish, which was however carefully removed again after 24 hours. They were then treated in the like manner as the previous samples and were after, on the average, 3 to 4 weeks, submitted to the tests.

For the tests now following, I had a testing machine built, in which, by means of several fixing and other devices, the samples were subjected to pulling, crushing, breaking, grinding, etc., stresses and tests. The machine was so arranged that by exchanging single parts, one could test with its help the various factors of firmness or strength.

The apparatus consists, as Fig. C plainly shows, of a solid square cast-iron base plate A, on which, at its narrow side, a strong, round steel arm B is erected, which at its top is bent at a right angle, forming a gibbet.

(To be continued.)

## INDIANA DENTAL COLLEGE.

The twenty-ninth annual commencement exercises of the Indiana Dental College were held May 12. The following program was presented:

1. Selection—"The Red Mill".....Herbert  
English Opera House Orchestra.
2. Opening address of welcome.....  
George Edwin Hunt, M. D., D. D. S.
3. Selection—"Traumerei" ..... Schumann  
English Opera House Orchestra.
4. Vocal Quartette ..... Selected  
Odeon Male Quartette.
5. Address—"Higher Education and Professional Life".....  
Prof. W. A. Mills, President-elect of Hanover College.
6. Selection—"The Girl Question".....Howard  
English Opera House Orchestra.
7. Vocal Quartette ..... Selected  
Odeon Male Quartette.
8. Conferring of Degree.....  
John N. Hurty, M. D., Phar. D., President of Board of Trustees.
9. March—"Free Lance" ..... Sousa  
English Opera House Orchestra.

## CLASS ROLL.

Samuel K. Avery,	Walter Edwin John-	Perry Paul Paris,
George W. Barr,	ston,	William Willard Peit,
John H. Beeson,	Elmer Carl Jones,	Grover C. Repass,
Orla Ernest Biery,	Jesse Marion Jordan,	Hugh Walter Reynolds,
Nelson Dewitt Boys,	Oscar Howard Lackey,	Melvin Joseph Roth,
Charles Carroll Brown,	Charles Albert Lamb-	George Otto Ruff,
Jr.,	din,	Robert O. Sheldon,
Frederick A. Carlon,	Lawrence W. Papinska,	Daniel W. Singer,
Orval Oris Carter,	Edmund Laughlin,	Roy D. Smiley,
Robert A. Chattin,	Gilbert Dillard Lay-	Athol Monroe Snyder,
Frank M. Davis,	mon, ,	Charles Thomas Sny-
Clyde H. Dunfee,	Fred Lee McAninch,	der,
Arthur Robert Ficken,	Arthur D. McKey,	Vernon C. Stockberger,
John Bertus Gambrel,	Clinton Thad Messner,	J. Alan Thomson,
Emmet O. Hall,	James A. Moag,	James Arthur Throop,
Elmer E. Hanks,	Frank H. Moelk,	Leslie Staples Tucker,
Walter A. Hendrick-	Walter Francis	Guy A. Whitmer,
son,	O'Brien,	Charles W. Zike,
Merle Weseley Ivins,		

## 1908 GRADUATES OF THE MARYLAND DENTAL COLLEGE.

Bennett Gray, Solomon B. Hoffman, Abraham Mogull, Richard G. Pyles, William Quitt, Harry Carlton Robertson, Joseph L. Sachs, Walter Theodore Voigt, Rodger Walter Williams, James D. Allworth, Sandal Hirsch, Robert William Lackman, Samuel Stein, Edmund Smith Semple, Arthur Peter Windheim, Alphonse C. Champagne, Robert E. Allen, Charles Hill Courtney, Perry I. Darden, Mathew

Leo Hargrave, William Edward Hines, Eugene B. Howle, Frank A. Lasley, Louis J. Pegram, Allie Glenn Phifer, Samuel R. Watson, John Thomas Underwood, Herbert W. Atchison, Levi L. Belcher, Charles L. Callaway, Ralph H. Kelly, William B. Skaggs, John Andrew Chamblin, Thomas A. Foley, William C. Reichenbach, James E. Funderburk, Vinton L. Hewitt, Frederick Ernest Monks, Raymond Smyser Neiman, Jesse Ralph Piper, Nevin Ray Spangler, Harry Judson Noonan, George Andrew Phillips, Philip C. Southard, George N. Butler, Augusta Sabagien.

### 1908 GRADUATES OF THE OHIO COLLEGE OF DENTAL SURGERY

#### NAMES OF GRADUATES.

Charles Baer, Ralph E. Barton, Alden Beagle, Emma M. Beddow, George L. Brunk, Evan F. Cleland, Ernest D. East, Clarence G. Elder, Paul A. Falbush, Henry E. Germann, Matthew H. Glossinger, Alvin Hall, Harry W. Hamilton, Chattie M. Hildebrand, John A. Keller, Jr., Charles F. Kennedy, Bert Kinsley, Clarence J. Lindemann, William McCaughrin, Edward McCurdy, Harry A. McLaughlin, Jess E. McComb, W. F. Marlatt, Ph. G., Frederick R. Martin, Malcolm M. Maupin, James C. Maybin, William P. Monahan, Edith W. Neufarth, John W. Purdy, Fred C. Robinson, H. M. Schweinsberger, Ray R. Shelt, Ethel E. Spencer, David D. Stoner, Wiley C. Thompson, Harry M. Thornton, James M. Turner, Clarence S. Warren, Dumont Walton, Ross C. Wells.

#### 1908 GRADUATES OF THE BALTIMORE DENTAL COLLEGE.

Maryland, Louis Lohman, Thomas Lee McCarriar, Henry Charles Newberger; North Carolina, James Dennis Gregg; Massachusetts, Nelson Sylvester Wood; New York, George Joseph Buckley, Clarence Wendel Fuller, Abraham Brumberger, Maurice Arthur Dolowitch, James Warriner Davis; Rhode Island, Eli Paquin, James Edward Harden; Connecticut, John James Grimley; Florida, Edward Clark; Vermont, John Henry Kiniry; New Hampshire, Arthur Daniel Elkins; Canada, Edward Ruel McClintock.

James Denis Gregg received the faculty gold medal, and the following gentlemen were given honorable mention: Edward Ruel McClintock, Louis Lohman, James Warriner Davis, Thomas Lee McCarriar, John Henry Kiniry, Clarence Wendel Fuller.

# MEETINGS

**California State Dental Association** will meet in San Francisco, Cal., June 9, 1908.

**Colorado State Dental Association** will meet in Boulder, Colo., June 18, 19 and 20, 1908.

**District of Columbia Dental Society** will meet in Baltimore, Md., June 4, 5 and 6, 1908.

**Indiana State Dental Association** will meet in Indianapolis, Ind., June 4, 5 and 6, 1908.

**Maryland State Dental Association** will meet in Baltimore, Md., June 4, 5 and 6, 1908.

**Michigan State Dental Society** will meet aboard steamer "Mackinac" en route to the "Soo," Mackinac Island and return, June 10, 11, 12 and 13, 1908.

**Minnesota State Dental Association** will meet in St. Paul, Minn., June 8, 9 and 10, 1908.

**New Jersey State Dental Society** will meet in Asbury Park, N. J., July 15, 16 and 17, 1908.

**Ohio State Dental Society** will meet in December, 1908.

**Pennsylvania State Dental Society** will meet in Philadelphia, Pa., June 30, July 1 and 2, 1908.

**South Dakota Dental Society** will meet in Lead, S. D., July 22 and 23, 1908.

**Southern Illinois Dental Society** will meet in Greenville, Ill., Oct. 27, 1908.

**Texas State Dental Association** will meet in Dallas, Texas, June 11, 12 and 13, 1908.

**Virginia State Dental Association**, Richmond, July 14, 15 and 16.

**Wisconsin State Dental Society** will meet in La Crosse, Wis., July 21, 22 and 23, 1908.

---

## FOR RECIPROCITY

The report of the committee on legislation was adopted at the recent meeting in Springfield, recommending a law enabling the State Dental Board to practice reciprocity and issuing licenses to dentists of other states who possess the Illinois qualification.

**SOUTHWESTERN MICHIGAN AND FIFTH DISTRICT DENTAL SOCIETIES.**

The joint meeting of Southwestern Michigan and Fifth District Dental Societies was held at Grand Rapids, April 14, 15, 1908. The place of meeting was the Hotel Pantland, and it seems in keeping right here, to refer to their courtesy. The service was very excellent and they were extremely obliging to us, as their guests and to the exhibitors, who had to have things moved around and considerably stirred up, as it were, to best display their goods.

The management was especially kind and patient.

Before taking up and referring briefly to papers and discussions, it seems only right to say a word as to the attitude of the audience toward the essayist. In no instance could the essayist be heard distinctly on account of the noise and commotion: people coming in and going out; whisperings and interruptions of all kind were the rule. This is not right to any one. Certain people are asked to prepare papers for the mutual benefit of those gathered together *presumably* to learn. These papers are prepared with a great deal of thought, study and care—and as a matter of mere courtesy only, if nothing more, the audience should give them the respect of rapt attention. And, who knows? Even those who think they know it all, might learn something!

Tuesday afternoon at 1:30, Dr. F. E. Williams gave a paper on "A Discussion of Class Two." The writer is wondering how many dentists present could have told what they were going to hear discussed before entering the lecture room. Those who had guessed *Orthodontia*—hold up their hands!

"Mouth-breathing, with all its bad features, distortion of the face, etc., are some of the results of this condition. The cause, of course, is the adenoid growths in the nose, this often causing deafness and depression of the chest! The upper lip draws up, the lower one thickens in its effort to reach the upper, as it must, during mastication. As a remedy, remove adenoids and when young, to get the best results.

"The effort of mouth-breathing is hard; that is why people of that class are usually not as bright. In this class of people, also, the anterior teeth become bunched, lapped and protruding, because the arch is not large enough to accommodate the teeth in the natural way."

The discussion was opened by Dr. C. B. Blackmar, of Jackson, Mich. Dr. Blackmar has a good, jolly way of putting things which holds one's attention. He said: "Any one having reached the age of 25 finding their teeth all crowded and distorted, if there is any truth in reincarnation, certainly should be born again, as the quickest and easiest way out of it. The removal of one ounce of adenoid growth is worth one pound of orthodontia. We are always insisting that the water we drink should be pure, but any old air will do to breathe. This is all wrong!" He referred to an article on "Mouth-Breathing" in the *Saturday Evening Post* of April 4, 1908, which indeed is well worth the reading and from which Dr. Blackmar quoted.

Dr. N. S. Hough of Ann Arbor, Mich., was called upon and said that in his estimation the extraction of the first molar (maltrusion) was the cause of all of this trouble with all of its bad and subsequent results. In his opinion the first molar is the most important tooth and should have the profound respect of all good dentists.

Dr. C. H. Land of Detroit on "The Elimination of All Conspicuous Cavities in the Anterior Teeth," was the next speaker. We are all familiar with not only Dr. Land's method, but with his success. The first thing Dr. Land said was: "The time has come when a display of gold in the human mouth is considered *barbarous!*" How many of his listeners at once closed their mouths tight shut, so as not to be labeled "barbarous." Dr. Land had charts showing exactly how he worked. He said: "I can scale the enamel from a tooth more easily than most people can put in a gold filling, and can put on all enamel *superior to nature!* This is saying a good deal, I will admit, but I can cite instance after instance where I have done so and on patients year ago, some of them the work to my knowledge still being in perfect condition. I do not destroy the nerve, but I do preserve the teeth," was the concluding convincing statement made by Dr. Land.

This was followed by Dr. B. J. Cigrand on "Enlarging Metallic Posts to Conform to Badly Decayed Roots," and by the way, this was one of the papers we had no trouble in hearing, Dr. Cigrand, having a particularly forceful delivery! *Anchorage* being very important in the treatment of roots, was dwelt upon to some extent. "The time is not far distant when the loss of a tooth will be the cause for household mourning, for certainly extraction is becoming obsolete. Any



root or roots still possessed of sound or healthy tooth substance, should never be extracted. Simply prepare in ordinary manner, no matter what style of crown is used.

"Bridge work is not as good as work on individual teeth; the individual tooth will be much more independent!

"One must be careful and temper all their enthusiasm with judgment; conservatism is always a good thing not only to possess but to use!"

In the use of gutta-percha foundation for filling, as advocated by some, Dr. Cigrand does not agree, as it is porous and deteriorating. "The shaping of roots with two big openings is wrong, as it must be thick on the sides—again if the anterior portion of a root has been fractured away it can be saved." *Acolite*, as used in Dr. Cigrand's method, in place of gold, is a base metal used in casting, to build up broken down roots, and Dr. Cigrand said: "The method is good, not because it is mine, but because it protects humanity!"

Dr. Runyan of South Haven opened the discussion and in the treatment of roots advocated the putting in of posts and building up with amalgam. He called our attention also to the fact that if roots are not taken care of they eventually disappear! Dr. Hough followed with some remarks. Technically he found no fault with the method as advocated by Dr. Cigrand. He, however, did not think that bridge work should not be used; a great many times a broken down root can often be better utilized if connected by bridgework. One can not do a high-grade of work on a poor basis. *Never* abandon a root unless hopeless:

Dr. R. M. Bunting of Ann Arbor, Mich., gave a paper showing much thought and study, on "The Histology of the Tooth," illustrating with charts. This was one of the papers almost entirely lost by all, unless directly under the speaker's nose, on account of the noise.

Dr. Bunting said that the most vulnerable point for decay is at the occlusion of the first molar. The reasons for failure in filling are many—the most common being failure to properly prepare the enamel margins; failure also to remove decayed tooth substance directly underneath the enamel.

Dr. Bunting suggested that in the use of cocaine, the injection should be made in point of direct contact with tubuli.

Three principal reasons for decay were given: 1. Abrasions. 2. Fractures. 3. Acid decalcification!

Dr. F. D. Loomis of Battle Creek opened the discussion and agreed practically with Dr. Bunting.

Dr. Spaulding thought that the papers would help all dentists to be more careful in cavity preparation and thus avoid many failures.

Dr. A. C. Runyan of South Haven, on "Dental Education in Our Schools with Stereoptican Slides," showed us the good he is doing. On the principle that what one can see they can the more easily believe, with these stereoptican slides the children, naturally, can more quickly understand; on the supposition, also, that a great majority of these children come from homes where these things are not taught, what an important part of education this proves itself to be! We understand that some ill-enlightened person or persons had presumed quietly to criticize Dr. Runyan for this work in the schools, thinking he was over-stepping professional dignity in so doing.

We can not see it in that way at all, but can only approve heartily in the good work he is doing;—as was stated in a discussion upon the matter—"even though one trip to simplify his remarks technicalities will crop out, which are not generally understood, but with the pictures—why, it is necessary to talk so little, and still there it all is—perfectly *understandable*. We hope Dr. Runyan will let the good work go on!

---

#### **SOUTHWESTERN MICHIGAN DENTAL ASSOCIATION**

The Southwestern Michigan Dental Association held its meeting in April and elected the following officers for the ensuing year: Dr. J. B. Boyle of Grand Rapids, president; Dr. A. A. Welch of Battle Creek, vice-president; Dr. C. W. Johnson of Lawton, secretary-treasurer.

---

#### **ILLINOIS STATE DENTAL SOCIETY**

At a recent meeting of the Illinois State Dental Society the following officers were elected for the ensuing year: President, A. D. Black, Chicago; E. F. Hazel, Springfield, vice-president; R. J. Hood, Sparta, secretary; C. P. Pruyn, Chicago, treasurer; J. T. Cummins, Metropolis City, librarian. A vote of thanks was extended Governor Charles Deneen for appointing Drs. H. W. Whipple of Quincy and T. A. Broadent of Chicago, two members of the state society, as members of the Illinois State Board of Dental Examiners.

**GEORGIA STATE DENTAL SOCIETY.**

The Georgia State Dental Society has changed its place of meeting from White Sulphur Springs to Augusta. The meeting will be held June 10, 11 and 12.

---

**KANSAS DENTAL ASSOCIATION**

The Dental Association held its meeting in Topeka, May 12, 13 and 14, and elected the following officers for the ensuing year: L. D. Hodge, Arkansas City, president; E. Bumgardner, Lawrence, vice-president; S. J. Renz, Leavenworth, second vice-president; H. W. Fessenden, Ottawa, secretary; J. S. Walker, Chetopa, treasurer; A. G. Wilcox, Junction City, supervisor of clinics.

---

**OHIO AND INDIANA STATE BOARD OF DENTAL EXAMINERS**

The Indiana State Board of Dental Examiners held its recent meeting at Indianapolis and decided to establish reciprocal relations with the state board of Ohio. The new law recently passed in Ohio similar to the one in Indiana made it possible for the two boards to interchange licenses.

---

**NEW YORK STATE DENTAL SOCIETY**

The New York State Dental Society held its meeting in Albany, May 7, 8, and 9. The following officers were elected for the ensuing year: President, Louis Meisburger of Buffalo; vice-president, B. C. Nash of New York; secretary, Ellison Hillyer of Brooklyn; treasurer, M. D. Jewell of Richfield; correspondent, F. C. Ferris of Brooklyn.

---

**TENNESSEE DENTAL ASSOCIATION**

The Forty-first annual meeting of the Tennessee Dental Association was held May 7, 8 and 9 and elected the following officers for the ensuing year: John R. Beach of Clarksville, president; C. M. Taylor of Memphis, first vice-president; Stanley M. Rich of Nashville, second vice-president; Chas. A. Tavel of Memphis, recording secretary; Dr. DeKinney of Nashville, corresponding secretary; F. W. Mecham of Chattanooga, treasurer. The next meeting will be held in Memphis.

**IOWA STATE DENTAL SOCIETY**

The Iowa State Dental Society held its recent meeting in Des Moines and elected the following officers for the ensuing year: C. W. Bruner of Waterloo, president; F. M. Hunt of Des Moines, vice-president; G. M. Slinglin of Burlington, treasurer; T. F. Cooke of Burlington, secretary; R. H. Bolland of Iowa City, superintendent of clinics. The next meeting will also be held in Des Moines.

---

**SOUTHERN BRANCH OF THE NATIONAL DENTAL ASSOCIATION**

The Southern branch of the National Dental Association held its meeting in Birmingham and elected the following officers for the ensuing year: J. E. Chace of Ocala, Fla., president; H. C. Hassell of Tuscaloosa, first vice-president; W. W. Westmoreland of Columbus, Miss., second vice-president; Charles L. Gunn of Gadsden, Ala., third vice-president; C. H. Frink of Fernandina, Fla., recording secretary; W. G. Mason, of Tampa, corresponding secretary; B. D. Brobson of Knoxville, Tenn., treasurer.

---

**SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.**

The next meeting of the South Dakota state board of dental examiners will begin Monday, July 20, 1908, beginning promptly at 9 o'clock a. m. and continuing three days, at Lead, S. Dak. All persons desiring to take this examination must make application to the secretary, and send fee of \$10.00 at least one week prior to the above date. No candidates will be received for examination who do not make application as above specified. Applicants are required to bring dental engine, filling materials, articulators, teeth, and all appliances and materials necessary to do crown and bridge work.

G. W. COLLINS, Secretary.

---

**UTAH BOARD OF EXAMINERS.**

The next regular semi annual meeting of the Utah State Board of Dental Examiners will be held in Salt Lake City, beginning at 9 a. m. Tuesday, June 16, 1908. All must pass examination before being registered. Application, accompanied by the fee of twenty-five dollars, should be filed with the secretary not later than June 13.

A. C. WHERRY, Secretary.

**NORTHERN INDIANA DENTAL SOCIETY.**

The twentieth annual meeting of the Northern Indiana Dental Society will be held at Fort Wayne, Ind., September 8, 9, 1908. An excellent meeting is expected.

---

**INDIANA STATE DENTAL BOARD.**

The next meeting of the Indiana State Board of Dental Examiners will be held in the State House at Indianapolis, beginning at 9 o'clock Monday morning, June 8, and continuing three days. All applicants for examination will be required to be present at this time. For further information address the secretary, F. R. HENSHAW, Middletown, Indiana.

---

**ILLINOIS STATE BOARD OF DENTAL EXAMINERS.**

The next meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the State of Illinois will be held in Chicago, at the Northwestern University Dental School, southeast corner of Lake and Dearborn streets, beginning Thursday, June 4, 1908, at 9 a. m.

Applicants must be in possession of the following requirements in order to be eligible to take the examination: (1) Any person who has been engaged in the actual, legal and lawful practice of dentistry or dental surgery in some other state or country for five consecutive years just prior to application; or (2) is a graduate of and has a diploma from the faculty of a reputable dental college, school, or dental department of a reputable university, or (3) is a graduate of and has a diploma from the faculty of a reputable medical college or medical department of a reputable university, and possesses the necessary qualifications prescribed by the board.

Candidates will be furnished with proper blanks and such other information as is necessary, on application to the secretary. All applications must be filed with the secretary five days prior to the date of examination. The examination fee is twenty (\$20) dollars, with the additional fee of five (\$5) dollars for a license.

Address all communications to

J. G. REID, Secretary.

1204 Trude Bldg., Chicago, Ill.

**IOWA BOARD OF DENTAL EXAMINERS.**

The Iowa State Board of Dental Examiners will hold its next meeting for examination at Iowa City, June 12, 13, 15, 16, 17, 1908.

Written and practical examination will be required.

For further information address, E. D. Brower, Secretary, Le Mars, Iowa.

---

**THE MINNESOTA STATE BOARD.**

The Minnesota State Board of Dental Examiners will hold a special meeting at the State University, Dental Department, in Minneapolis, beginning at nine o'clock June 10, 1908. At this meeting all applicants for registration in this State will be examined.

For further information apply to

Geo. S. Todd, Secretary,  
Lake City, Minn.

---

**THE MISSISSIPPI DENTAL ASSOCIATION.**

The fifteenth annual meeting of the Mississippi Dental Association will be held in the Senate chamber of the Capitol at Jackson, Miss., on June 9, 10 and 11.

A special programme is being arranged and a large attendance is expected. All ethical practitioners invited. For further particulars address

Dr. E. Douglas Hood, Secretary,  
Tupelo, Miss.

---

**MONTANA STATE BOARD OF DENTAL EXAMINERS.**

The annual meeting of the Montana State Board of Dental Examiners will be held in Helena, commencing the second Monday in July, 1908, and continuing three days. All applications, and fee of twenty-five dollars, should be filed at least ten days prior to the meeting. Application blanks, and the dental laws of Montana, which every applicant is expected to read before the examination, will be furnished upon application to the secretary. Vulcanizers, and dental engines, without handpieces, will be furnished.

D. J. Wait, Secretary,  
103 Broadway.

**THE MICHIGAN STATE BOARD.**

The Michigan State Board of Registration and Examination in Dentistry will hold its next semi-annual meeting to examine candidates for registration in Michigan, beginning Monday, June 8th, at 8 o'clock and continuing through the 13th, in the Dental Department of the University of Michigan at Ann Arbor. Applications must be in the hands of the secretary at least five days before the meeting.

For full particulars address the secretary, E. A. Honey, Kalamazoo, Mich.

Very sincerely yours,

E. A. HONEY, Secretary-Treasurer.

---

**MICHIGAN STATE DENTAL SOCIETY.**

Annual meeting and boat trip combined.

The Michigan State Dental Society will hold its annual meeting on Wednesday, Thursday, Friday and Saturday, June 10th to 13th, inclusive, on board the steamer City of Mackinaw, on a trip through the Detroit River, Lake St. Clair, the Flats and on to Mackinaw and the "Soo." The total expense of the trip, including passage, meals, berth, will be nineteen dollars for the round trip, and all our ethical dentists and friends are cordially invited to join us. The principal feature of the meeting will be table clinics, good papers, a complete dental exhibit and a good time. An ideal meeting under ideal conditions. Four days to find out what our fellow practitioners are doing.

Those desiring to have accommodations reserved for them should apply at once to Dr. O. W. White, 406 Fine Arts Building, Detroit, stating the number of persons in party and whether it is a family party or all men.

A deposit of five dollars is required for each reservation.

O. W. WHITE,

Local Arrangement Committee.

---

**VIRGINIA STATE DENTAL ASSOCIATION.**

The meeting place of the Virginia State Dental Association has been changed to Richmond, Va., Murphy's Hotel Annex, July 14, 15, 16, 1908.

W. H. PEARSON,

Corresponding Secretary.

## MISCELLANEOUS

### CORRECTION.

In the list of State Board secretaries given in our May issue we gave the names of the old secretaries in New Mexico and Arizona. The new secretary for New Mexico is Dr. M. J. Moran at Deming, and for Arizona, Dr. J. Harvy Blain at Prescott.

### TO WHOM DENTAL LICENCES ARE ISSUED IN JAPAN

His Excellency Luke E. Wright, American Ambassador in Japan, transmits translations of recent ordinances relating to licenses for the practice of medicine and dentistry in Japan. The Government will grant licenses for their practice to graduates of foreign medical and dental colleges, or those who have practised such professions in foreign countries, who may satisfy the Japanese Government requirements.—*Consular and Trade Reports.*

### DR. STEEVES RECOVERING.

Dr. Alice M. Steeves has been traveling during the past year, convalescing from neuritis and studying the varying conditions of the dental profession, together with many subjects of public interest. Dr. Steeves is a graduate of the class of '97 of Northwestern University Dental School. Oral hygiene in the public schools has received her special attention since graduation, and her name appears on many programs during the coming months.

### ACOLITE.

The introduction of this material following the invention of the system of casting by Dr. Taggart has created considerable interest in the profession. Because it is a low-fusing metal it can be cast directly upon porcelain without checking the tooth or crown.

It is a tasteless metal white in color, takes good polish, casts sharp, and shows as yet no indication of discoloration. It is especially indicated in cases of badly decayed and broken-down roots, restoring as it does the lost portion of that part of the root below the gum, especially the interior portion.



**THE "BEST."**

The best natural disinfectant, sunshine; best germ disinfectant, formaldehyde; best physical disinfectant, soap; best moral disinfectant, publicity.—*Biref*.

**DEODORIZER FOR DENTAL OFFICE.**

The addition of a fluid drachm of formaline to an ounce of good perfume, sprayed about your office, will keep it from smelling like a "dentist's shop."—*Dental Summary*.

**TO CLEAN IMPRESSION TRAYS.**

Put the trays and a piece of sal soda the size of a walnut in half a gallon of water and boil for fifteen minutes. Take out the trays and wipe dry while warm.—*J. R. Hull, Western Dental Journal*.

**NICKEL-PLATED PARTS.**

One of the best methods known for keeping bright the nickel work about the office is to wet a rag with a solution of hypo-sulphate of soda, and then rubbing it with a piece of chamois.—*Dental Summary*.

**TREATMENT OF PULPS.**

All things considered, the conditions being equal, I am of the opinion that the very best method of removing pulps from teeth and the subsequent treatment, especially in molars and bicuspid, is to devitalize the organ by the use of some arsenical preparation—*L. P. Buckley, Brief*.

**SOFT SOLDER.**

For soft solder, composed of either tin or tin and lead, a saturated alcoholic solution of zinc chloride crystals will be found superior to an aqueous solution or to the deliquescent chloride.—*A. R. Cook, Stom*.

**PORCELAIN AT HIGH HEAT.**

If porcelain remain in contact with the maximum heat long enough, or if it is brought to the maximum fusing heat by repeated firing, it tends to form a glass-like mass. All the hues of a color from the normal to a light may be made from the same porcelain by increasing the heat above its maximum fusing point, but this is done at the sacrifice of strength. This explains why each layer of enamel should be fired only to a high biscuit, and all the enamels to the point of glazing only at the final firing.—*Dr. J. I. Byram, Items*.

## A LIBRARY OF HISTORY.

The American Underwriters' Corporation offers in this issue one of the most remarkable bargains in books ever known. The publishers of the Library of Universal History, the Union Book Company, one of the largest publishing houses in Chicago, failed a short time ago, and the American Underwriters' Corporation, acting as receivers, are closing out the sets of this splendid publication at less than half the publishers' price.

The Library of Universal History is complete in fifteen volumes, beautifully bound, artistically illustrated, each volume being ten inches high, seven inches wide, and the complete set, boxed, weighs nearly seventy-five pounds. It is one of the most handsome and sumptuous set of books put out by any publisher, and was made to sell exclusively by subscription at \$56.00 per set, but the receivers now offer these sets for only \$24.50, and give a whole year to pay this small amount. Besides, they do not ask you to buy the books until you have examined them free of expense or obligation for a week in your own home. All you need to do is to ask if you may see them, and the books will be sent to you at once. This places you under no obligations to purchase any more than you would be expected to purchase if you went into a book store and asked the book seller to show you a book from his shelves.

Every one of our readers should be interested in this offer. You should at least ask to examine this work in your own home without paying anybody anything. After you have examined the books for a week, after your children have read parts of them, and after you have secured the views of your friends you may either send the books back at their expense or enclose them 50 cents as the first payment and send them \$2.00 a month for 12 months, as you may decide. That is all.

We would like to have you read further details of this offer, however, on page — of this present issue, where you will find a further description of the books and full particulars regarding this offer. Just read the offer anyway, as we are confident it will pay you to investigate this proposition.—*Advertisement.*

---

FOR SALE.

Direct-current Ritter Engine and direct-current Browning Lathe, both in excellent condition. Address H. S. H., care of AMERICAN DENTAL JOURNAL.

## PERSONAL AND GENERAL

**Slapped a Real Lady.**—A dentist in St. Louis was fined \$5 for slapping Mrs. Josephine Astrap, a negress.

**Fire.**—Dr. A. N. Fowle, at Racine, Wis., suffered a loss of furniture and rugs to the amount of \$250 by fire.

**Chance-King.**—Dr. Perry Chance of Paris and Mrs. Maude R. King of Chicago were married in London May 7.

**Shaulis-Lambert.**—Dr. Elmer F. Shaulis and Miss Elsie M. Lambert, both of Somerset, Pa., were married April 16.

**Sangamon-Menard Dental Society.**—The Sangamon-Menard Dental Society held its meeting May 8 at Springfield.

**Grainger-Thomas.**—Dr. M. H. Grainger of Whiteville, N. C., and Mrs. A. P. Thomas of Shallote, N. C., were married April 29.

**Rowe-Boden.**—Dr. Alexander Powell Rowe of Dephler, Ohio, and Miss Emma Carrill Boden of Winchester, Va., were married May 13.

**Bankruptcy.**—John Neales, a Springfield, Mass., dentist, has filed a petition in bankruptcy at Boston, with liabilities of \$538.28 and assets about \$150.

**Accused of Passing Worthless Checks.**—A dentist in Newport News, Va., is accused of passing worthless checks. A warrant has been sworn out for him.

**Dentist Bankrupt.**—Frank J. Moyer, Jr., a Lockport, N. Y., dentist, has filed a voluntary petition in bankruptcy. His debts are scheduled at \$1,681.95 and his assets at \$420.70.

**Dentist Disappears.**—Dr. T. C. Miller of Chicago Junction, Ohio, disappeared from his home May 12 and his present whereabouts is unknown to his family and friends.

**Knox County Dental Society Entertained.**—The Knox County Dental Society was entertained by the Warren County Dental Society at a banquet given in their honor in Monmouth.

**Teeth Made Her Whistle.**—Declaring that four artificial teeth made her whistle when she talked, a woman in Kansas City refused to pay a bill of \$46. The case was decided for the woman.

**College to Be a Part of University.**—The St. Louis Dental College has been acquired by the St. Louis University. For five years the college was a part of the Marion-Sims-Beaumont Medical School.

**Suffering From Blood Poisoning.**—Dr. C. P. Chandler, a dentist at Reno, Nev., is suffering from blood poisoning as a result of inflicting a cut on his finger while operating. He is in a serious condition.

**New Home for Nashville Dental College.**—The home of the late Dr. Richard Douglas in Nashville has been purchased for \$21,000 by trustees of the college for the reorganized dental department of the University of Tennessee.

**Meeting Postponed.**—The annual meeting of the Eastern Indiana Dental Association, which was to be held in Marion May 5 and 6, had been postponed until next year on account of the semi-centennial jubilee meeting of the Indiana Dental Association.

**Oldest Set of Teeth.**—The oldest set of teeth in existence was exhibited at the Kansas state meeting by Dr. L. D. Blacklin of Herington, made of ivory and said to have been carved in the year of 1750. The set is a full upper and lower, fastened together with springs.

**Sued for Auto Injury.**—Dr. Addison Brown, a dentist of Champaign and an automobile company are defendants in a \$6,000 damage suit brought by A. G. Woodbury, a business man of Danville, who says the defendants were riding in an automobile which struck him, causing injuries.

**Returns to China.**—Dr. E. C. Machle of Cincinnati, Ohio, is to return to the scenes which recall the murder of his wife and daughter by the Chinese boxers. The doctor has just finished a course in dentistry and pharmacy and will become a member of the faculty of the Canton, China, Medical School.

**Teach Dental Assistants.**—The American College of Dental Assistants has been organized in Kansas City, as the name implies it is for the purpose of training students to be dental assistants. The course is four months and a degree of "Graduate Dental Assistant" will be conferred upon its graduates.

**Robberies.**—Drs. Mary M. Hawley, Aurora, Ill., loss \$100; J. A. Limacher, Joliet, Ill., loss \$15; Wikoff, Brown & Graybeal, Chicago, Ill., loss \$200; L. L. DuBois, Clinton, Ill., loss \$60; Thomas A. Brady, Newark, N. Y., loss \$85.

**Removals.**—Drs. Joe McKim, from Newark, Mo., to Knobknoster; Tom Martin, from Winchester, Ky., to East Aurora, N. Y.; E. R. DeNormandie, from Claysville, Pa., to Washington, Pa.; Roy Walker, from Houston, Tex., to Lafayette, Ind.; Bowman Smith, from Berwick, Pa., to Wilkesbarre; F. A. Ross, from Boswell, Ind., to Lafayette; G. M. Lovering, from Buda, Ill., to Kewanee; F. A. Neil, from Marshalltown, Iowa, to Lowden, Iowa; George Ryder, from Lawler, Iowa, to DeWitt, Iowa; F. L. Clary, from Decatur, Ill., to Galva, Ill.; W. J. Schlosser, from Silver City, N. M., to Louisville, Ky.; W. C. Teter, from Upper Sandusky, Ohio, to Delaware, Ohio.

---

### NECROLOGICAL.

**Dr. F. S. Dungan**, a dentist at Indianapolis, Ind., died April 19. He was 29 years of age.

**Dr. Edwin S. Toof**, a dentist at New Haven, Conn., died April 17 of heart failure.

**Dr. DeWitt Spalsburg**, a dentist at Ypsilanti, Mich., died April 28.

**Dr. H. B. Peterson**, a dentist at Owosso, Mich., died May 5. He was 63 years of age.

---

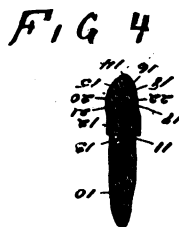
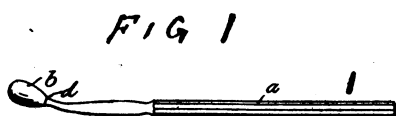
### FOR SALE

Four-cylinder autocar, run 8,000 miles, cost \$2,300; top, gas lamps, Vesta storage batteries, extra tire, good condition; will sell for \$800. Address F. L. J., care AMERICAN DENTAL JOURNAL.

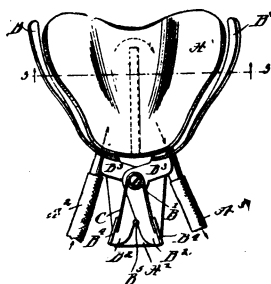
# DENTAL PATENTS

Fig. 1.

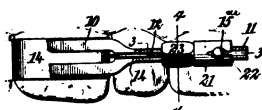
**882,711. Dental Instrument**—William B. Pearsall, Hampsted, London, England. Filed August 6, 1906. Serial No. 329,457.—A dental instrument of the character described consisting of a stem or handle having a bent end "c," the latter being reduced in diameter and having a shoulder "d," a head rotatably mounted on the end "c" and abutting against the said shoulder, and an expanded head on the end "c" to hold the rotatable head in position on said end.



**FIG 3**



**FIG 2**



**FIG 5**

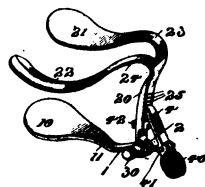


Fig. 2.

**868,628. Dental Regulator and Spacer**—Eben M. Flagg, New York, N. Y. Filed Oct. 5, 1906. Serial No. 337,636.—In dentistry, a grooved or channeled body bar for application to the dental arch, a tensioning member carried by the bar and received by its groove for application to a tooth, and means for attaching said member to the tooth to be rectified.

Fig. 3.

**883,055. Dental Impression-Tray**—Horace F. Smith, Seattle, Wash. Filed June 22, 1907. Serial No. 380,313.—An impression tray made hollow and having connections for the circulation through it of a cooling fluid and provided with a forwardly projecting handle plate, and the spring actuated guard or dilator plates separate from and conformed to and extending alongside the tray and pivoted to the handle plate and

having handle proportions extending thereover whereby they may be operated to spread the dilator plates independent of the tray, substantially as and for the purposes set forth.

Fig. 4.

**884,977. Crown and Bridge Work.**—Casper M. B. Boos, Muscatine, Iowa. Filed October 17, 1904. Serial No. 228,697.—A tooth crown, comprising a backing having slots therein, a body, pins in the body extending through the slots and engaging the rear surface of the backing, and a pin guard firmly attached to the backing, having two depressions therein immediately at the rear of the slots in the backing.

Fig. 5.

**883,106. Dental Appliance.**—Charles C. Galloway, Washington, D. C. Filed July 22, 1907. Serial No. 384,992.—A dental appliance, substantially as described, comprising a chin spoon having an outwardly extending shank, a mouth member having an upwardly extending shank at its lower end pivoted to said chin spoon shank intermediate the length thereof, and a vertically disposed dog for locking said mouthpiece and fulcrumed between its ends to the outer end of said chin spoon shank.

#### FOR SALE

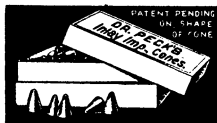
Cycloid chair and Allen table with bracket, both for \$20. Address B. W. D., care AMERICAN DENTAL JOURNAL.

#### FOR SALE.

Practice and office equipment in Kentucky town of six thousand, established twenty years. Less than invoice if taken quick. Address, F. Fuller, care American Dental Journal.

## Peck's Gold Inlay Impression Cones

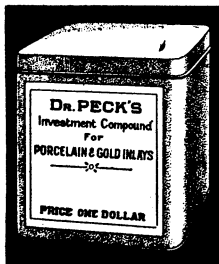
Points of Advantage in this Impression Material:



It softens readily under dry heat.  
It will not creep under the spatula.  
It is tough and can be carved perfectly.  
It can be removed from the cavity without fear of distortion.  
It is hard enough so that handling will not change its shape.  
It will not warp while placing the sprule in position.  
It is moulded in a convenient form to use.

Ask the Dental Depot for free sample.  
Price per box Sixty Cents. Sold at all Dental Depots.

## The Peck's Investment Compound



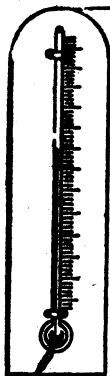
This Investment Material is guaranteed not to check and will ALWAYS produce the correct results. The only one advocated by Dr. Taggart in his paper read before the New York Society on Cast Gold Inlays.

Ask the Dental Depot for free samples.  
Price per can One Dollar.

**Arthur E. Peck, M. D., D. D. S.**  
1010 Donaldson Bldg., Minneapolis, Minn.

## INDEX TO ADVERTISEMENTS.

	Page
Acolite.....	44
Acestoria.....	6
Adams Mouth Prop.....	19
American Cabinet Co.....	5
Antikamnia Chemical Co., St. Louis.....	14
Ascher's Artificial Enamel.....	23, 80, 41
"Bargains".....	15, 16
Barkmeyer, H. R.....	9
Bristol Meyers Co., Brooklyn, N. Y.....	84
Carborundum Points.....	24
Caulk, The L. D. Co., Philadelphia, Pa.....	8
Central Chemical Co.....	38
Chicago College of Dental Surgery, Chicago, Ill.....	19
Chicago Dental Laboratory Co.....	20
Christopher & Goldbeck.....	26
Clark, A. C. & Co.....	Last Cover
Co-Arda Co.....	82
College of Dentistry, University of Illinois.....	11, 12
Crocker, Samuel A. & Co.....	36
Crown Pin Puller.....	9
Davis & Davis, Patents.....	14
Dee, Thomas J. & Co.....	38
De Trey, E. & Sons.....	57
Dental Ad-writer, H. Elfers.....	42
Dentists Supply Co., New York.....	55, 56, 58
Dumas Casting Machine.....	51
Edwards Co., J. W.....	29
Electro Dental Mfg. Co.....	40
Eureka Suction Co.....	42
Excelso Broaches.....	10
Goldsmith Bros., Chicago, Ill.....	18
Gold Inlay Machine.....	80
Gustav Scharmann.....	7
Hall & Ruckel.....	0
Harvard Co.....	39
Hisey Alvatunder.....	14
International Casting Machine.....	45-46
Indiana Dental College, Indianapolis, Ind.....	24
Kress & Owen Co., New York.....	00
Lambert Pharmacal Co., St. Louis.....	F. F. R.
Lauderdale Crown System.....	28
Lavoris-Chem. Co.....	50
Leo. E. Evslin, D. D. S.....	38
Lee Smith & Son.....	2
Library of Universal History.....	54
Louisville Dental Laboratory.....	29
Marshall Blackstone Co.....	9
Matteson Furnace.....	84
Metaline Carving Compound.....	24
Mylocal.....	48
Mounted Carborundum Points.....	24
Nerve Qui-et-us.....	35
Nolde Dental Mfg. Co., John T., St. Louis.....	22
North Western University Dental School.....	21
O'Brien Worthen Co.....	87
Office Coat Co.....	49
Overdier Coat Co.....	21
Peck's Inlay Compound.....	400
Permaneo.....	17
Preparation Bottle.....	28
Ritter Dental Mfg. Co.....	1
Ralph Bradner Co.....	32
Rodolf Casting Outfit.....	49
Skinner, F. H., DDS.....	34
S. Eldred Gilbert.....	8
Tooth Cleaning Mandrels.....	46
Trann Rubber Co.....	44
Turner Alcohol Blow Pipe.....	53
Wax and investing compound for Cast Gold Inlays.....	4, 8
Western New York Chem. Co.....	First Cover
Williams, J. A.....	28-31



## Columbia Alternating Current Lathes are the only alternating current electric lathes susceptible of speed control which can be run all day, every day, without overheating.

The reason is that Columbia Alternating Current Lathes contain no resistance wires, and the absence of resistance avoids the generation of heat; besides they are intelligently designed.

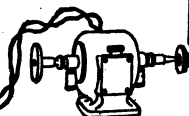
The speed of Columbia Alternating Current Lathes is controlled by a simple mechanical device which is certain in action and very efficient. It is free from wear when the lathe is running and not likely to get out of order.

Any lathe which generates much heat is likely to burn out. It must then go to the factory, involving expense and loss of service.

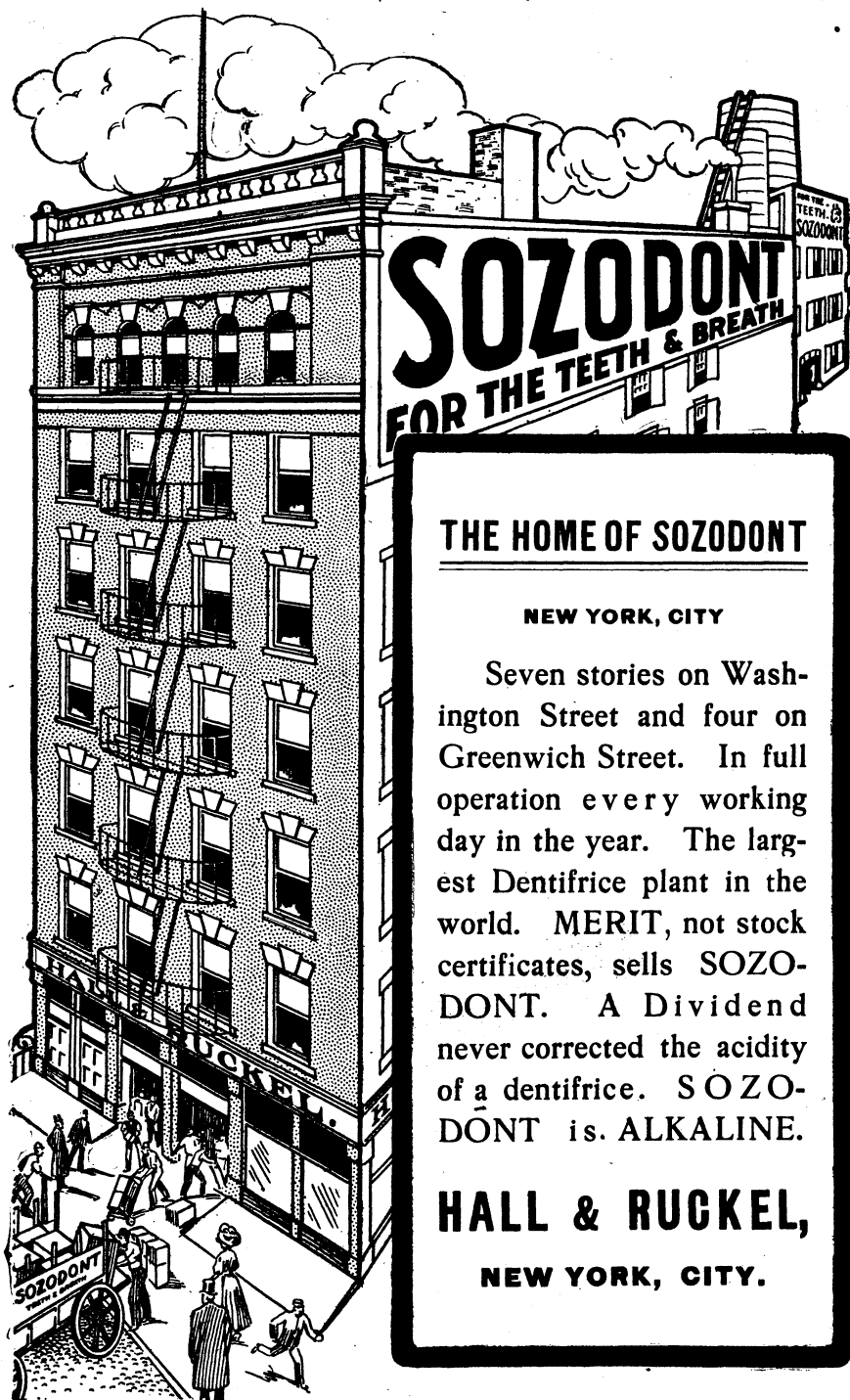
If you want an alternating current lathe which will not burn out but will be always ready and efficient, you *must* have a Columbia.

**THE RITTER DENTAL MFG. CO.**

**Rochester, N. Y.**







## THE HOME OF SOZODONT

NEW YORK, CITY

Seven stories on Washington Street and four on Greenwich Street. In full operation every working day in the year. The largest Dentifrice plant in the world. MERIT, not stock certificates, sells SOZODONT. A Dividend never corrected the acidity of a dentifrice. SOZODONT is. ALKALINE.

## HALL & RUCKEL,

NEW YORK, CITY.

By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers you will confer a favor upon both the Advertiser and the Journal.

# GLYCO-THYMOLINE

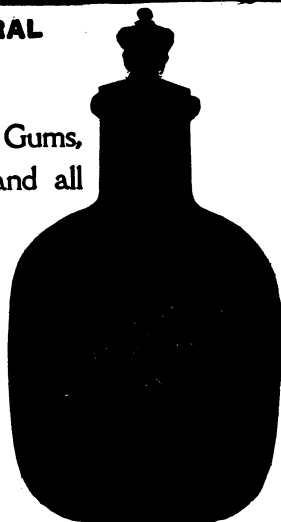
**IS INDICATED WHEREVER THE ORAL  
SECRETIONS ARE FOUND  
TO BE ACID.**

In Pyorrhea, Alveolar Abscess, Spongy Gums,  
Chronic Ulceration, Abscessed Antrum, and all  
Abnormal conditions of the mouth the  
Alkaline Antiseptic treatment cannot  
be too strongly advocated.

**SPECIAL OFFER.**—This Sprinkle Top Bracket Bottle,  
together with samples for your patients, will be sent free  
to any dentist mentioning this journal.

**Kress & Owen Company,**

**210 FULTON STREET. NEW YORK CITY.**

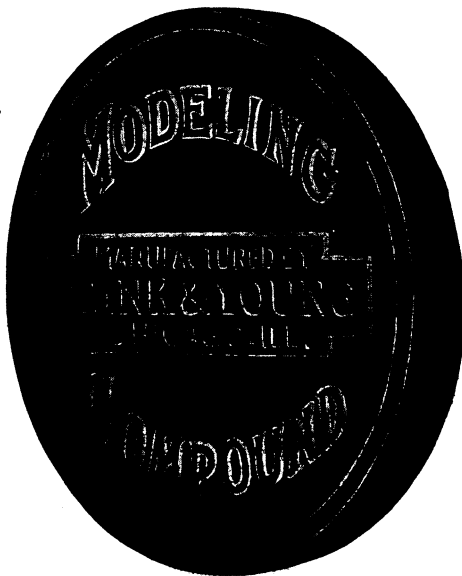


# THE ALKALINE ANTISEPTIC

**1 Pound, 75c**

**1-2 " 38c**

**TRY IT**



**BEST  
ON  
EARTH**

By mentioning the AMERICAN DENTAL JOURNAL when writing to Advertisers  
you will confer a favor upon both the Advertiser and the Journal



